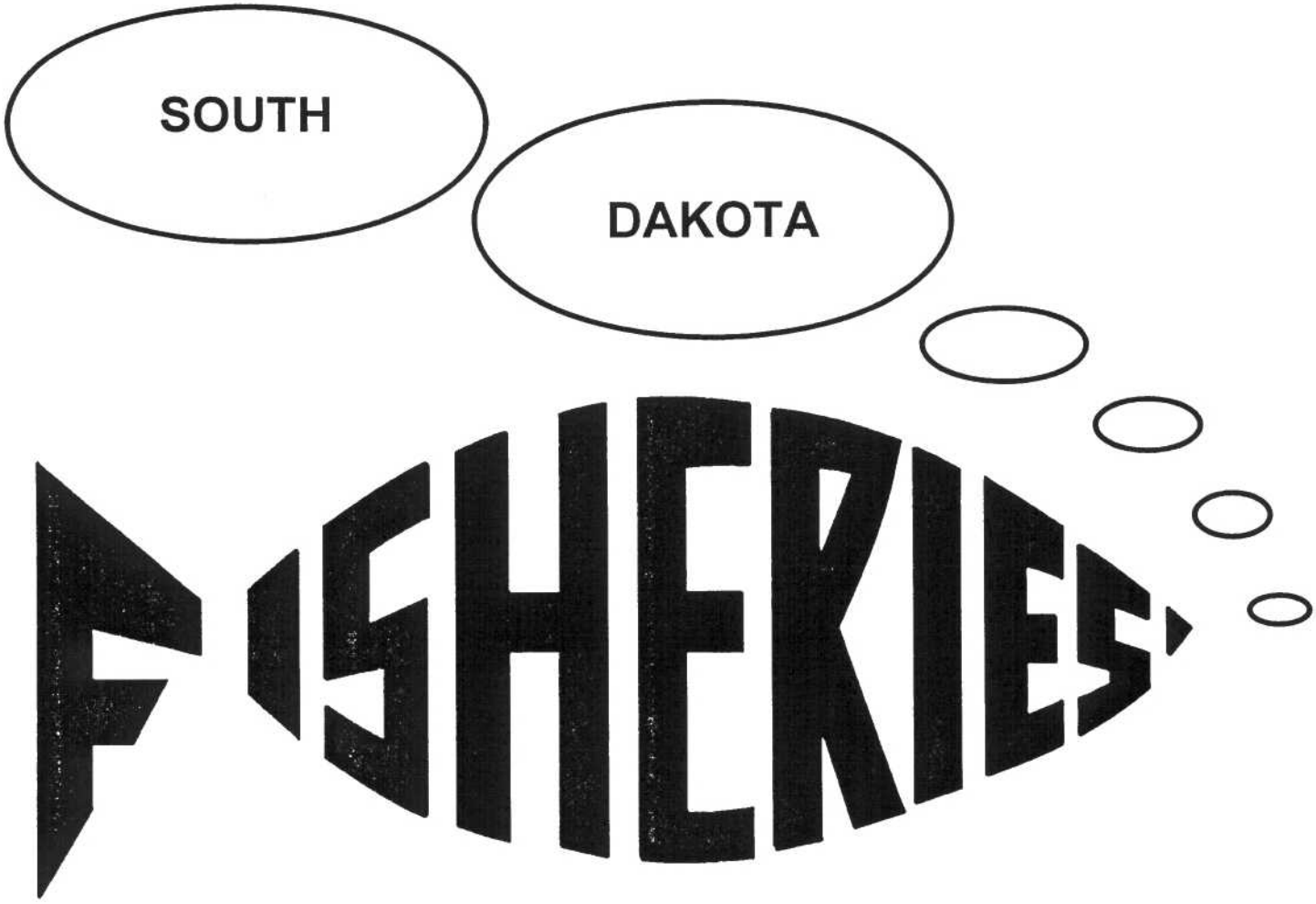


# STATEWIDE FISHERIES SURVEYS, 2002
# MANAGEMENT PLAN

**South Dakota**
**Department of**
**Game, Fish and Parks**
**Wildlife Division**
**Joe Foss Building**
**Pierre, South Dakota 57501-3182**

**Annual Report**
**No. 04-12**

# STATEWIDE FISHERIES SURVEYS, 2002

## MANAGEMENT PLAN

## SOUTH DAKOTA

## ANNUAL REPORT

edited by
**Dan R. Jost**

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|---|---|
| Dingell-Johnson | F-21-R-35 |
| Job Number | 2101 |
| Date | December, 2003 |

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Department of Game, Fish and Parks

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**Statewide Fisheries Surveys, 2002**
**Management Plan for Permanent and Semi-Permanent Waters**

# South Dakota

**By**

**Dan R. Jost**

## INTRODUCTION

Efforts were directed to review, update and analyze information pertinent to the character of selected South Dakota lakes.

Management plans for 13 waters are contained in this report, all are five year rewrites based on previous plans.

## ACCOMPLISHMENTS

**Management Region I**

Progress toward the completion of a comprehensive Region I Management Plan is underway and completed management goals and objectives will be defined under separate cover.

**Management Region II**

Management plan updates were not scheduled in Management Region I. Information was gathered and preliminary development of a Region I Lake and Watershed Management Plan was completed. Efforts to develop a Region I Management Plan will continue throughout the next segment with plans being written for individual waters.

**Management Region III**

The management plans in Region III for East Oakwood, West Oakwood, and Wall Lake were not completed due to lack of information and changing water conditions.

**Management Region IV**

Management plans for Management Region IV were not scheduled or completed due to a change in reporting format. Management recommendations and options are reported in the annual lake survey reports.

**Reservoir Management**

Management plans for Lake Oahe, Lake Sharp, Lake Francis Case, and Lake Lewis and Clark are written periodically as dictated by changes in management direction. Management plans for these waters are reported utilizing a separate format.

## OBJECTIVES

To complete or update management plans and outline goals, objectives and strategies on South Dakota waters.

# PROCEDURES

Reports and data from all available sources were analyzed to prepare a history of the past and present management of each body of water and current management plans were formulated. Various management actions are scheduled considering the development or changes in limnological and ecological structure of the lake. These actions may include manipulation of fish populations b stocking, harvesting or rehabilitation, population control practices and/or changes within the watershed, fishing regulations, access development, and lake basin modifications. The rewrites and updates include previously prepared management plans, data from periodic surveys and changes in the ecological, limnological and population dynamics of the water.

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Dante Lake (17-2)

**County:** Charles Mix

**Present Plan:** F-21-R-35
**Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-27
**Date:** January 1994 - December 1998

**Surface Area:** 18 Acres
**Management Class:** WWP
**Maximum Depth:** 23 Feet
**Mean Depth: 11** Feet

**Legal Description:** Sections 4 & 9, Township 95 N, Range 62 W

## INVENTORY

Dante Lake is an eighteen-acre impoundment 2 miles north and % mile east of the town of Dante in eastern Charles Mix County. The lake derives its name from the City of Dante, the closest municipality to the lake at the time of construction. Dante Lake was created in 1937 when the Works Progress Administration (WPA) constructed an earthen dam on an unnamed tributary of Chateau Creek. To allow for the construction of the dam and creation of the lake, five easement contracts were signed and recorded with the Charles Mix County Register of Deeds (Misc. Book 14, pages 201, 202, 203 and Misc. Book 20, page 42). The easements allow for public use of the dam grade, lake, and a strip of land to a point 12 feet above the high water contour. In 1965 the South Dakota Dept. of Game, Fish & Parks purchased 77.57 acres of land containing the south half of Dante Lake and manages it as a Game Production Area.

The watershed of Dante Lake is recorded at 1,900 acres, or approximately three square miles. Land use in the watershed is 78% pasture and hayland composed mostly of native grasses, 20% cultivated cropland, and 2% roads, residences and trees. In 1957, a silt detention dam was constructed in the watershed and has contributed greatly to reducing the amount of sediment that has entered the lake. From the outlet of Dante Lake, water flows down the tributary to Chateau Creek and eventually to the Missouri River. Soil types include deep silt and loamy soil, with undulating to gently rolling topography. Emergent vegetation is found along most of the shoreline. Submergents, including sago pondweed and coontail are found in the upper end of the lake and may become very dense during summer months. Access to Dante Lake is good via a county gravel road to the access area on the west edge of the lake. The concrete-plank boat ramp is in good condition. No other public use facilities are provided at Dante Lake.

Dante Lake has provided fishing opportunity since its construction. During the early years, bluegills, black bullheads, and largemouth bass supported the fishery. In 1954 the panfish and bullhead populations had reached very high densities resulting in the fish stunting before reaching a size acceptable to anglers. In an attempt to restore the lake to a viable fishery Dante Lake was chemically rehabilitated in 1955. After the rehabilitation several stockings were completed, mostly of predator fish such as walleye, largemouth bass, and northern pike. The only stocking recorded since 1985 was that of northern pike in 1990.

Stocking record for Dante Lake, Charles Mix County, 1983 - 2003

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1983 | 100,000 | NOP | FRY |
| 1983 | 700 | WHC | ADT |
| 1984 | 1,250 | NOP | FGL |
| 1985 | 900 | BLC | ADT |
| 1985 | 15,000 | NOP | FRY |
| 1990 | 250 | LMB | FGL |

Six adult fish population surveys have been conducted at Dante Lake during the past 25 years. As indicated in past records, an overabundant bluegill population, and lack of predators, continues to be the limiting factor inhibiting a quality fishery. During the 1982 and 83 surveys, bluegill were the dominant fish species, however good populations of yellow perch and largemouth bass were also present. At the time of the 1987 survey perch and bass were no longer sampled in the lake. Dante was surveyed in 1995 and most recently in 2000, in both studies only bluegill and a small number of bullheads were present.

Dante Lake was most recently surveyed in July 2000. Eight, 24-hour, frame net sets were used to sample the adult fish population. Bluegill comprised 99% of the fish sampled with a CPUE of 182.3. This is over twice the density recorded in 1995. In 2000, PSD was 98 and the mean Wr for bluegill was 95. Black bullhead was the only other fish species being sampled. The bullhead population has a very low density with a CPUE of only 2.3. PSD for bullheads was 83 and condition was poor with a Wr of 88.7.

Total catch of eight, 24 hour, 3/4 inch frame nets at Dante Lake, Charles Mix County, July 10-12, 2000.

| Spec | No. | Low 80% CI | Mean CPUE | Up 80% CI | Low 90% CI | **PSD** | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| BLB | 18 | 1.2 | 2.3 | 3.3 | 68 | 83 | 99 | 86.5 | 88.7 | 90.9 |
| B1.G | 1458 | 143.2 | 182.3 | 221.3 | 95 | 98 | 100 | 94.3 | 95.0 | 95.8 |

## MANAGEMENT GOAL

**To manage the fishery at Dante Lake to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Decrease bluegill densities to a trap-net CPUE of 30 to 50. Improve bluegill growth and condition to equal the state average.

Strategy 1 a. Increase largemouth bass density to a level that effectively reduces bluegill recruitment.

Strategy lb. Physically remove bluegill to reduce densities and use as a source for other waters.

**Objective 2.** Increase Dante Lake's largemouth bass population to a nighttime electrofishing CPUE of 20 or more fish over stock length.

Strategy 2a. Monitor largemouth bass by means of nighttime electrofishing to determine population density, growth, condition and size structure.

Strategy 2b. Stock largemouth bass adults, if necessary, to supplement existing population.

**Objective 3.** Maintain black bullhead densities at a CPUE of 20 or less.

Strategy 3a. Monitor bullhead population by means of standard population survey methods to determine density.

**Objective** 4. Inform, receive, and use public input to assist in the management of Dante Lake.

## 5 YEAR OPERATIONAL PLAN

1. Conduct a standard fisheries population survey in 2003 and 2006 utilizing eight, 24-hour frame-net sets, and at least 1 hour of nighttime electrofishing to monitor all fish species.

2. Utilize Dante Lake as a source to trap and transfer bluegill adults for statewide needs.

3. If nighttime electrofishing reveals largemouth bass CPUE of 20/hour or less, stock with adult bass at a rate of 10/acre.

4. Monitor bullhead population by means of standard survey and schedule bullhead removal project if CPUE is above 50.

5. The local Conservation Officer and other GF&P staff should solicit input from all sources and provide information to the Regional Fisheries Manager on a timely basis.

6. Conduct a thorough evaluation of the present management plan and complete a new plan by January 2008.

Completed by Dan R Jost, Regional Fisheries Manager, Region II

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Pudwell Lake (20-7) **County:** Corson

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 65 Acres **Management Class:** WWP
**Maximum Depth:** 17 Feet **Mean Depth:** 10 Feet

**Legal Description:** Sections 27 & 28, Township 23 N, Range 23 W

## INVENTORY

Pudwell Lake is a 65-acre impoundment four miles east of McIntosh in north central Corson County. The name of the lake was derived from the owner of the land on which the dam was constructed. Pudwell Lake was created in 1938 with the construction of an earth-fill dam on Iron Dog Creek by the Works Progress Administration (WPA). To allow for the building of the dam grade and creation of the lake, easement contracts were signed allowing for the lake and a strip of land 12 feet above the high water contour for public use. These easements are recorded in the office of the Corson County Register of Deeds.

The watershed of Pudwell Lake is approximately 5,760 acres or 9 square miles. Land use in the watershed is estimated as 60% pasture, hay land, or land enrolled in the conservation reserve program. The remaining 40% is cultivated farm ground, residences, roads, and shelterbelts. Several small dams and dugouts lie within the watershed of Pudwell, but no major waterbodies. From the spillway at Pudwell Lake, water flows down Iron Dog Creek to the Grand River and eventually to Lake Oahe on the Missouri River. The topography of the watershed is nearly flat to gently rolling. Soil types primarily include clay loam covered with short, warm season, prairie grasses. Though a siltation survey has never been completed, it is noted that a moderate amount of siltation has occurred in the upper portions of the lake. The proximity of a cattle feeding area on the east edge of the lake has undoubtedly contributed to increased nutrient levels. Emergent vegetation, consisting mostly of bulrush, surrounds the entire shoreline except for the dam grade. Submergent vegetation is found to a water depth of 5 feet during summer months. Access to Pudwell Lake is good via a gravel road from US Hwy 12. The concrete-slab boat ramp is in poor condition. Though useable, this ramp should be replaced with a new poured concrete ramp. There are no other public use facilities at Pudwell Lake.

Little information is available regarding the fishery at Pudwell Lake prior to 1950. Records indicate Pudwell received heavy fishing pressure during the 1950s. Success was excellent for panfish and northern pike. With the construction of the Oahe Dam and the creation of nearby Lake Oahe in the 1960s, fishing pressure on Pudwell declined. This resulted in the panfish increasing in density to a point that growth was slow and the fish were no longer acceptable to anglers. The lake was chemically rehabilitated in 1969. In 1970, a onetime stocking of rainbow trout provided a fishery immediately after eradication. Largemouth bass, walleye, and channel catfish where stocked in the early 1970s to restore a warm-water fishery. Black crappies were present in Pudwell soon after the rehabilitation providing panfish angling opportunity. During the 1980s, black crappies provided the majority of the fishery and Pudwell became a favorite destination for ice fisherman during the winter months. The crappie population continues to be strong in the present. Yellow perch have developed into another popular panfish species with good size structure and growth at Pudwell. Very little was known about the largemouth bass population, other than reports by anglers, until regular electrofishing on the lake was completed. The bass population is excellent aided by several stockings in the 1990s. Walleyes provide a secondary predator and are instrumental in controlling the population of black bullheads. Walleyes were stocked last in 1997 and 1999.

**Stocking record for Pudwell Lake, Corson County, 1986 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1986 | 5,600 | WAE | FGL |
| 1987 | 20,000 | FHM | ADT |
| 1988 | 5,600 | WAE | FGL |
| 1989 | 4,000 | LMB | FGL |
| 1990 | 2,000 | LMB | FGL |
| 1991 | 4,000 | LMB | FGL |
| 1993 | 110 | BLC | ADT |
| 1993 | 10,000 | LMB | FGL |
| 1994 | 6,500 | LMB | FGL |
| 1995 | 302 | BLC | ADT |
| 1995 | 3,250 | LMB | FGL |
| 1997 | 1,625 | WAE | FGL |
| 1999 | 1,625 | WAE | FGL |

Pudwell Lake as most recently surveyed in 2001. Two, 150 foot experimental gill net sets and ten, 24-hour, frame net sets were completed in July and five, 10-minute, electrofishing transects were completed in October of that year. The numerous stockings during the 1990s have had a positive effect in the largemouth bass population. A CPUE of 67 bass/hr was recorded during electrofishing with a PSD of 93 and an RSD-P of 23. Relative condition of the bass was excellent with a Wr of 113.0. The 1997 and 1999 walleye stockings were also very successful. A gillnet CPUE of 7.0 was recorded while a framenet CPUE of 12.2 was found. PSD for walleyes was 86 and RSD-P was 14. Condition was poor with a Wr of only 86.3.

Black crappies continue to be the most populous panfish species in Pudwell Lake. During the 2001 survey a framenet CPUE of 12.0 was recorded with a PSD of 100 and an RSD-P of 84. Yellow perch were also abundant. Frame net catches were at a rate of 8.5. Perch PSD was 87 and RSD-P was 51. Condition was poor with a mean Wr of 88.9. Black bullhead densities remain low with a framenet CPUE of 1.9.

**Total catch of five, 10-minute runs of electrofishing on Pudwell Lake, Corson County, Oct. 1, 2001.**

| SPEC. | No. | CPUE fish/hr (80%CI) | PSD,RSD-P (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|
| LMB> stock | 56 | 67.2(26.2) | 93(6),23(9) | 113.0(0.3) |

**Total** 56

**Total catch of two, 150 foot, gillnet sets at Pudwell Lake, Corson County, July 16, 2001.**

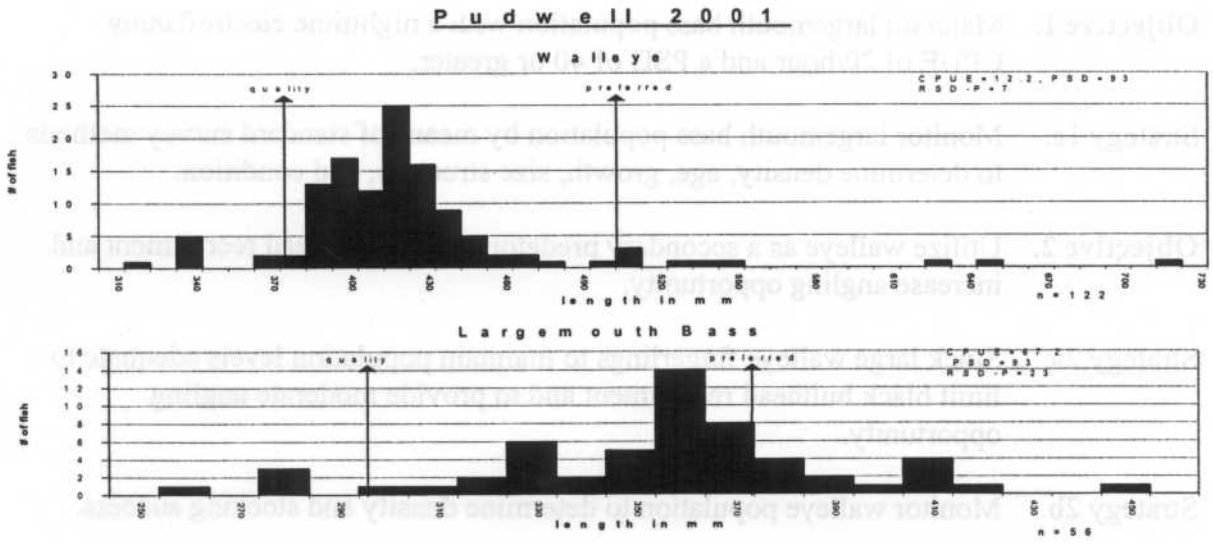
| Spec. | No. | % | CPUE (80%CI) | PSD, RSD-P (90%CI) | Stock Mean Wr(90%CI) |
|---|---|---|---|---|---|
| BLC | 4 | 10.5 | 2.0(6.2) | na | 110.2(--) |
| LMB | 1 | 2.6 | 0.5(1.5) | na | 112.9(--) |
| WAE | 14 | 36.8 | 7.0(15.4) | 86(17),14(17) | 86.3(1.7) |
| YEP | 19 | 50.0 | 9.5(7.7) | 71(35),29(35) | 93.2(4.0) |

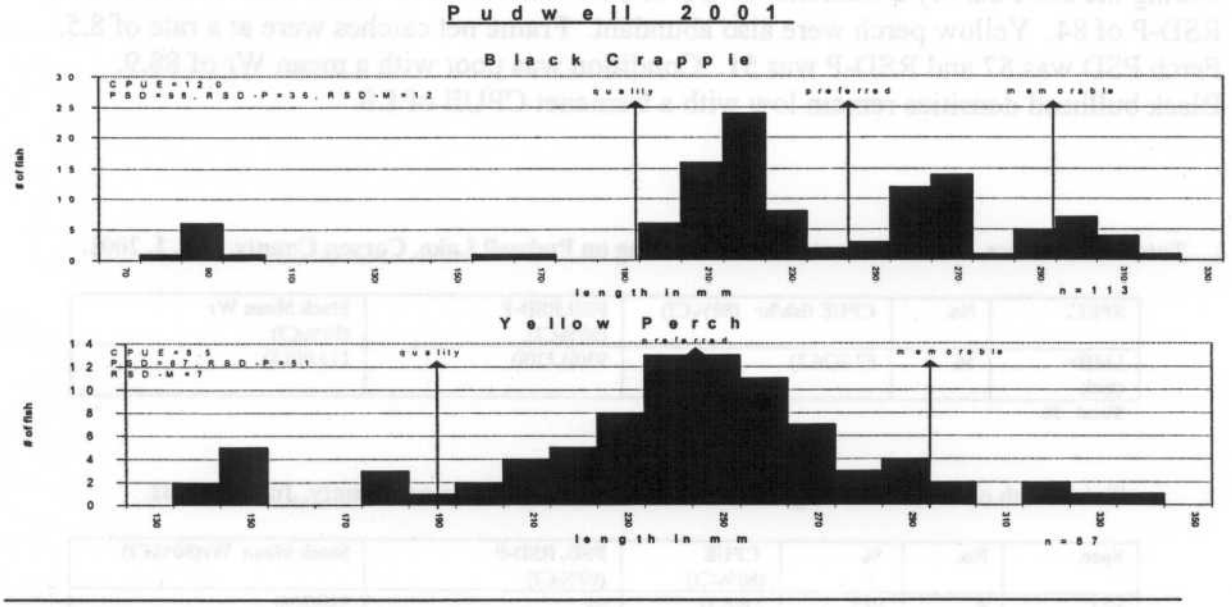
**Total** 38

**Total catch of ten, 24-hour, 3/4-inch frame nets at Pudwell Lake, Corson County, July 16, 2001.**

| Spec. | No. | % | CPUE (80%CI) | PSD, RSD-P (90%CI) | Stock Mean Wr(90%CI) |
|---|---|---|---|---|---|
| BLB | 19 | 5.4 | 1.9(0.6) | 100(-),84(15) | 93.2(4.5) |
| BLC | 120 | 34.3 | 12.0(2.9) | 98(2),44(8) | 109.5(0.6) |
| NOP | 4 | 1.1 | 0.4(0.3) | na | 87.2(3.5) |
| WAE | 122 | 34.9 | 12.2(3.8) | 93(4),7(4) | 83.8(0.9) |
| YEP | 85 | 24.3 | 8.5(2.9) | 87(6),51(9) | 88.9(0.5) |

**Total** 350






## MANAGEMENT GOAL

**To manage the fishery at Pudwell Lake to maximize angler opportunity.**

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## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 20/hour and a PSD of 40 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Utilize walleye as a secondary predator to limit bullhead recruitment and increase angling opportunity.

Strategy 2a. Stock large walleye fingerlings to maintain population levels adequate to limit black bullhead recruitment and to provide moderate angling opportunity.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Maintain black bullhead densities to a CPUE of 10 or less.

Strategy 3a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 4.** Maintain yellow perch CPUE at 10/gillnet with growth and condition at or above the state average.

Strategy 4a. Stock yellow perch adults if necessary to supplement existing population.

**Objective 5.** Maintain black crappie population at current densities with growth and condition at or above the state average.

Strategy 5a. Maintain bass and walleye populations at densities that prevent panfish from becoming overpopulated slowing growth.

Strategy 5b. Monitor black crappie population utilizing standard adult survey methods to determine density, growth and condition.

**Objective 6.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Pudwell Lake.

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## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2004 and 2007 utilizing eight, 24 hour, ¾ inch framenets, two, 150 foot, experimental gillnet sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2004 and 2006.

3. If survey results indicate a yellow perch CPUE of 10 or less, stock with perch adults at rate of 10/acre.

4. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

5. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

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Completed by Dan R Jost, Regional Fisheries Manager, Region II

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2004 and 2007 utilizing eight, 24 hour , ¾ inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2004 and 2006.

3. If survey results indicate a black crappie CPUE of 10 or less, stock with crappie adults at rate of 10/acre.

4. If electrofishing results indicate a CPUE of 20 or less largemouth bass/ hour, stock with bass adults at a rate of 10/acre.

5. Physically remove all black bullhead captured at time of 2004 and 2007 surveys.

6. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

7. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

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Completed by Dan R Jost, Regional Fisheries Manager, Region 11

# FIVE YEAR FISHERIES MANAGEMENT PLAN

Water: Eagle Butte Lake (24-7) **County:** Dewey

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-26 **Date:** January 1993 - December 1997

**Surface Area:** 70 Acres **Management Class:** WSP
**Maximum Depth:** 25 Feet **Mean Depth:** 13 Feet

**Legal Description:** Section 32, Township 13 N, Range 24 W

## INVENTORY

Eagle Butte Lake is a 70-acre impoundment located two miles east and one mile north of the City of Eagle Butte in southwestern Dewey County. Eagle Butte Lake is also commonly known as Brueschke Dam. The name Eagle Butte comes from its close proximity to the City of Eagle Butte, and the name Brueschke comes from Eric Brueschke, the owner of the land on which the lake was constructed. The artificial impoundment was created in 1934 when the Works Progress Administration (WPA) completed the construction an earthen dam and concrete spillway on Green Grass Creek. To allow for construction, an easement to the State of South Dakota was granted for public use of the lake and a 12-foot strip of land above the high-water contour for public use. Easements were recorded with the Dewey County Register of Deeds, Misc. Book 4, pages 126 - 133 and Misc. Book 11, pages 402 - 404 and 437. In 1987 all easements and water rights were transferred to the City of Eagle Butte, which owns the majority of the land surrounding the lake.

The watershed of Eagle Butte Lake is approximately 6400 acres or 10 square miles which is mainly located to the south of the lake. Soils in the watershed are primarily clay with the topography varying from nearly flat to gently rolling. Utilization of the land in the watershed is 40% cropland, 58% pasture, hayland, or land enrolled in the Conservation Reserve Program, and 2% roads, farms, and the City of Eagle Butte. There are 18 recorded small dams and dugouts in the watershed, but no major waterbodies. From the spillway of Eagle Butte Lake water flows down Green Grass Creek to the Moreau River and eventually to Lake Oahe. Siltation from the watershed is evident in the upper end of the lake and has led to increased vegetation growth. Emergent vegetation consisting of bulrush and cattail, surround the entire lake except for the dam grade. Submergent vegetation has been recorded as very dense to a depth of 8 feet in the past. Recent surveys show little submergent vegetation due to poor water clarity. Access from US Hwy 212 is by a county gravel road. Access trails are located on the east side of the lake. The existing boat ramp is in poor condition. The City of Eagle Butte is in the planning stages of developing a fishing access area at the location of the present ramp. In addition

the City has recently reconstructed the dam and spillway area which should increase the lakes volume. A golf course is also being constructed on the west and south edges of Eagle Butte Lake.

Following construction, Eagle Butte Lake was stocked with black bullhead and largemouth bass in 1936. Very little information is available from that time until 1959 when a lake classification was completed. The first recorded test netting was in 1965. Northern pike, yellow perch, black crappie and largemouth bass were sampled. Populations of all fish species were above average and size was large enough to be desired by anglers. The fish population in Eagle Butte showed very little change until 1988 and had a reputation as a good panfish fishery. During the 1988 survey black bullheads dominated the fish population and walleyes from the 1984, 1986 and 1988 stockings were present in good numbers. In 1996 only a remnant population of black bullhead remained in the lake. Though it was not recorded, it is thought that winterkill was the reason for the dramatic decline in the fish population. In 1997 and 1998 largemouth, walleye and crappie were restocked into Eagle Butte Lake.

**Stocking record for Eagle Butte Lake, Dewey County**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1936 | 4,000 | BLB | JUN |
| 1936 | 1,250 | LMB | FGL |
| 1936 | 5,000 | BLB | JUN |
| 1975 | 3,700 | LMB | FGL |
| 1976 | 18,000 | WAE | FRY |
| 1976 | 8,500 | LMB | FGL |
| 1982 | 270 | BLC | ADT |
| 1982 | 4,250 | WAE | FGL |
| 1983 | 275 | BLC | ADT |
| 1984 | 3,500 | WAE | FGL |
| 1986 | 4,250 | WAE | FGL |
| 1988 | 4,250 | WAE | FGL |
| 1997 | 8,500 | LMB | FGL |
| 1997 | 1,672 | WAE | FGL |
| 1998 | 200 | BLC | ADT |
| 2001 | 2,315 | WAE | FGL |

Eagle Butte Lake was most recently surveyed on June 3 - 5, 2002 utilizing ten, 24-hour, frame net sets. Gill nets were not set in Eagle Butte and electrofishing was not completed due to low water. The black bullhead population continues to be overabundant. One positive note was that CPUE decreased from 300 in 1999 to 168 in 2002. Condition of bullheads was poor with a Wr of 83. The reintroduction of black crappie into the lake following winterkill was successful with a CPUE of 5.3 recorded in the frame nets. Size structure looked good with a PSD of 96 and an RSD-P of 10. The adults stocked in 1998 successfully recruited a yearclass in 1999 and reproduction was evident in 2002. The 1997 stocking of large walleye fingerlings created a very strong yearclass. A frame net CPUE of 3.1 was documented with growth and condition both good for that of small impoundments. This walleye yearclass probably is responsible for the reduction in bullhead numbers. Very little information in known about the current largemouth bass

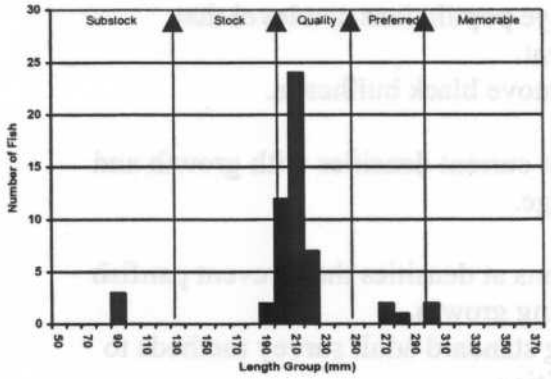
population because the water levels were too low to allow fall electrofishing in 2002. The largest concern with the fish population in Eagle Butte Lake at this time is extremely low water levels. With the lake only holding approximately 50% of its water volume, winterkill is a likely threat in the near future.

Total catch of ten, 24-hour, ¾-inch frame nets at Eagle Butte Lake, Dewey County, 2002.

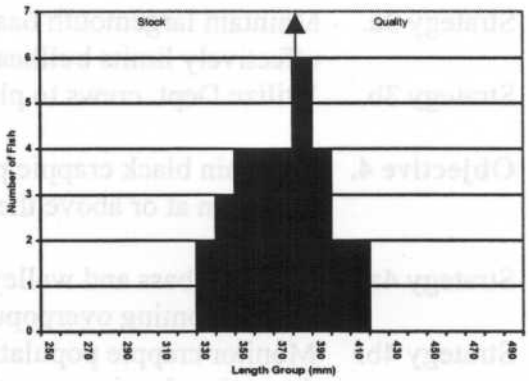
| Species | # | % | CPUE | 80% C.I. | Mean CPUE* | PSD | RSD-P | Mean Wr |
|---|---|---|---|---|---|---|---|---|
| Black Bullhead | 1683 | 95.0 | 168.3 | ± 76.4 | 200.7 | 46 | 0 | 83 |
| Black Crappie | 53 | 3.0 | 5.3 | ± 3.1 | 0.3 | 96 | 10 | 93 |
| Walleye | 31 | 1.8 | 3.1 | ± 0.9 | 1.8 | 45 | 0 | 84 |
| Northern Pike | 3 | 0.2 | 0.3 | ± 0.2 | 0.0 | -- | -- | 89 |
| Green Sunfish | 1 | 0.1 | 0.1 | ± 0.1 | 0.0 | -- | -- | 94 |

* Two years (1996 & 1999, due to apparent winterkill in 1992/93)

**Length Frequency for Walleye, Eagle Butte Lake, 2002**




**Length Frequency for Black Crappie, Eagle Butte Lake, 2002**




## MANAGEMENT GOAL

**To manage the fishery at Eagle Butte Lake to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 20/hour and a PSD of 40 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Utilize walleye as a secondary predator to limit bullhead recruitment and increase angling opportunity.

Strategy 2a. Stock large walleye fingerlings to maintain population levels adequate to limit black bullhead recruitment and to provide moderate angling opportunity.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Maintain black bullhead densities to a CPUE of 50 or less.

Strategy 3a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

Strategy 3b. Utilize Dept. crews to physically remove black bullheads.

**Objective 4.** Maintain black crappie population at current densities with growth and condition at or above the state average.

Strategy 4a. Maintain bass and walleye populations at densities that prevent panfish from becoming overpopulated slowing growth.

Strategy 4b. Monitor crappie population utilizing standard adult survey methods to determine density, growth and condition.

**Objective 5.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Eagle Butte Lake.

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Lake Isabel (24-1) **County:** Dewey

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-27 **Date:** January 1994 - December 1998

**Surface Area:** 81 Acres **Management Class:** WWP
**Maximum Depth:** 25 Feet **Mean Depth:** 8.8 Feet

**Legal Description:** Section 16, Township 17, Range 22

## INVENTORY

Lake Isabel is an 81-acre impoundment 2 v2 miles north of Isabel in northwest Dewey County. As implied, Lake Isabel derived its name from the close proximity to the City of Isabel and has been utilized as a water source for the City since shortly after construction. Lake Isabel was created in 1934 when the Works Progress Administration (WPA) completed construction of an earthen dam on a tributary of Firesteel Creek. The dam grade and entire lake lies within a 640-acre Game Production Area owned and managed by the South Dakota Dept. of Game, Fish and Parks.

The watershed of Lake Isabel is 8,320 acres or approximately 13 square miles. The land use in the watershed is 90% native grasses that are utilized as hayland and livestock grazing, 5% cultivated cropland, and 5% roads, tree belts, residences and the City of Isabel. The immediate shoreline is 100% native grasses within the Game Production Area. Several small dams are present in the watershed, but none are considered major water bodies. Soil in the watershed is primarily gumbo on slopes that vary from nearly flat to gently rolling. Although siltation is evident in the upper end of the lake, it is not thought to be a major problem. From the outlet of Lake Isabel water flows to Firesteel Creek to the Grand River, and eventually to Lake Oahe on the Missouri River. Emergent vegetation, consisting mainly of bulrush, surrounds the entire lake and is heaviest in the upper end of the lake. Submergent vegetation is found throughout the lake growing to a depth of 7 feet during the summer months. Access to Lake Isabel is excellent from SD HWY 65. A gravel trail surrounds the entire lake. The picnic area, boat ramp, and beach are in good condition for a small impoundment in central South Dakota. Maintenance is a cooperative effort between the SD GF&P and the City of Isabel. The dam grade breached and was rebuilt in 1953. Once again in 1983 the dam suffered structural problems and major repairs to the spillway were completed to keep the dam from failing. At this time the dam grade, and outlet structure are in good condition.

Very little is know about the fishery at Lake Isabel prior to 1952 when the dam was rebuilt after failing during a major spring flooding event. Records indicate several stockings of largemouth bass, black crappie and black bullhead in the 1930s and northern pike and walleye in the 1940s. After the lake refilled upon completion of the new dam grade, walleye, northern pike and largemouth bass were reintroduced into Isabel. Despite the stocking of predator species, black bullhead numbers increased to problem levels. Lake Isabel was chemically eradicated in 1965 and brown and rainbow trout were introduced to provide a short-term fishery. Following the trout stockings, walleye and largemouth bass were stocked to establish a permanent warm-water fishery. Currently largemouth bass and three species of panfish thrive in Lake Isabel. Since 1990 large walleye fingerlings have been stocked once every two years to provide a secondary predator to keep the panfish from overpopulating and becoming stunted.

**Stocking record for Lake Isabel, Dewey County, 1965 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1966 | 30,171 | BNT | FRY |
| 1966 | 30,024 | RBT | FRY |
| 1966 | 70,000 | WAE | FRY |
| 1967 | 5,000 | BNT | FGL |
| 1967 | 12,500 | CCF | FGL |
| 1967 | 6,000 | LMB | FGL |
| 1967 | 10,010 | RBT | FGL |
| 1967 | 6,000 | WAE | FGL |
| 1968 | 25,025 | RBT | FGL |
| 1968 | 62,500 | WAE | FRY |
| 1969 | 4,000 | LMB | FGL |
| 1971 | 14,500 | WAE | FGL |
| 1973 | 8,750 | WAE | FGL |
| 1974 | 12,500 | CCF | FGL |
| 1974 | 12,500 | WAE | FGL |
| 1974 | 125,000 | WAE | FRY |
| 1978 | 60,000 | WAE | FRY |
| 1979 | 3,000 | WAE | FGL |
| 1980 | 6,250 | WAE | FGL |
| 1981 | 3,000 | LMB | FGL |
| 1982 | 6,250 | WAE | FGL |
| 1986 | 4,250 | WAE | FGL |
| 1988 | 315 | LMB | ADT |
| 1989 | 5,000 | WAE | FGL |
| 1991 | 4,000 | LMB | FGL |
| 1992 | 3,566 | WAE | FGL |
| 1993 | 2,500 | WAE | FGL |
| 1995 | 1,300 | WAE | FGL |
| 1997 | 3,250 | WAE | FGL |
| 1999 | 3,250 | WAE | FGL |
| 2001 | 1,925 | WAE | FGL |

The most recent fish population survey was conducted at Lake Isabel during July 2001. Ten, overnight frame net sets and two, 150-foot experimental gill net sets were used to sample the fish population. Four, 10-minute electrofishing transects were also completed in October to sample largemouth bass.

Black Crappie was the most abundant species sampled in 2001, as it was during the past several surveys. The average frame net CPUE was 17.7 with a PSD of 79 and an RSD-P of 5. Condition was good with a Wr of 95.3 and growth was slow compared to the state average. The black crappie population in Lake Isabel has remained very stable from information gathered during lake surveys since 1990.

The bluegill population also shows very little change over the past several years. In 2001 a frame net CPUE of 13.5 was recorded with a PSD of 56 and an RSD-P of 19. While growth was slow, condition was good with a Wr of 104.5. Forty yellow perch where captured in the two, 150-foot experimental gill net sets. Of the fish captured, only one was above quality length. The vast majority of the perch sampled were age two.

The predator species in Lake Isabel all seem to have a stable, low to moderate density population with good growth and is mainly dominated by larger fish. Northern Pike sampled in the frame and gill nets had a PSD of 100 and an RSD-P of 11. A frame net CPUE of 1.8 and a gill net CPUE of 4.5 was recorded during the 2001 survey. This may seem low but since the sampling was completed in July, these numbers do not represent the true density of northern pike in Lake Isabel. Walleye density remained low in 2001 with a gill net CPUE of 3.5. All fish sampled, by all gear types, were over quality length. Growth was at or slightly above the Region II average. A fall, nighttime, electrofishing CPUE of 51.0 was recorded for largemouth bass. This is the highest CPUE recorded in the past several years. The increase in fish sampled may be due to the use of the new Smith-Root electrofishing boat that functions more efficiently in highly conductive waters. PSD for bass was 70 with an RSD-P of 50. Condition was well above average with a Wr of 113.5.

During the 2001 fish population survey, samples of largemouth bass and northern pike were sent to the South Dakota State Health Lab for contaminant sampling. Both species came back with mercury levels above the EPA's level for which consumption advisories are issued. In 2002 additional intensive samples were also tested. The results were also high for bass and pike. As a result a fish consumption advisory was placed on Lake Isabel for largemouth bass and northern pike. This advisory remains in effect at the present time. The fish species for which the advisory is issued will continue to be periodically monitored to track changes in the mercury levels over time.

**Total catch of four, 10-minute electrofishing transects at Isabel Lake, Dewey County, Oct. 12, 2001.**

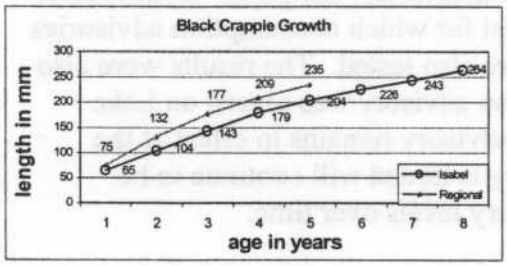
| Species | Number | % | CPUE fish/hr (80%CI) | PSD (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| LMB>stock | 35 | 83.3 | 51.0(27.9) | 97(5) | 113.5(1.4) |
| LMB<substock | 1 | 2.4 | 1.5(2.5) | -- | 115.7 |
| WAE | 6 | 14.3 | 9.0(9.4) | 100(na) | 92.8(2.9) |

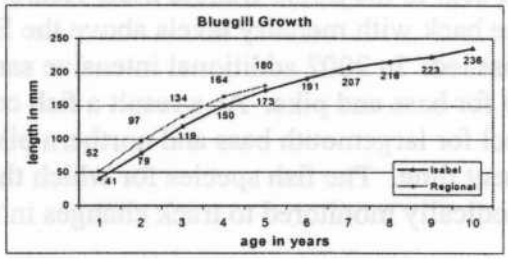
**Total catch of two, 150-ft. of experimental gill net sets at Isabel Lake, Dewey County, July 30, 2001.**

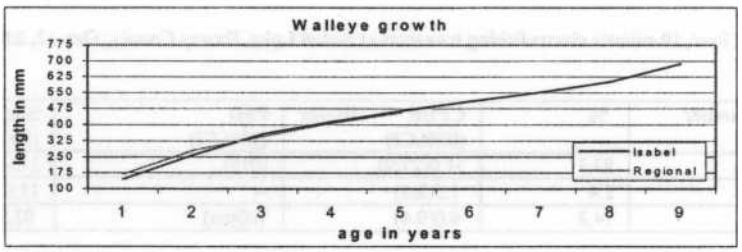
| Species | Number | % | CPUE (80%CI) | PSD, RSD-P (90%CI) | Stock Mean Wr(90%CI) |
|---|---|---|---|---|---|
| BLC | 30 | 31.3 | 15.0(15.4) | 38(16),7(8) | 100.7(1.7) |
| BLG | 7 | 7.3 | 3.5(10.8) | 57(39),0(--) | 108.4(3.5) |
| LMB | 1 | 1.0 | 0.5(1.5) | ---------- | 101.2 |
| NOP | 9 | 9.4 | 4.5(7.7) | 100(--),11(21) | 92.4(3.9) |
| WAE | 7 | 7.3 | 3.5(1.5) | 100(--),33(43) | 87.8(2.3) |
| WHC | 2 | 2.1 | 1.0(3.1) | ---------- | 93.1(0.0) |
| YEP | 40 | 41.7 | 20.0(30.8) | 3(--),3(--) | 95.9(1.1) |

**Total catch of ten, 24 hour, 3/4-inch frame nets at Lake Isabel, Dewey County, July 30, 2001.**

| Species | Number | % | CPUE (80%CI) | PSD, RSD-P (90%CI) | Stock Mean Wr(90%CI) |
|---|---|---|---|---|---|
| BLC | 177 | 50.3 | 17.7(11.3) | 79(5),5(3) | 95.3(0.9) |
| BLG | 135 | 38.4 | 13.5(3.5) | 56(7),19(6) | 104.5(1.1) |
| HYB | 4 | 1.1 | 0.4(0.3) | na | --- |
| GSF | 3 | 0.8 | 0.3(0.3) | na | 117.2(--) |
| LMB | 1 | 0.3 | 0.1(0.1) | na | --- |
| NOP | 18 | 5.1 | 1.8(0.8) | 94(9),0(-) | 82.0(2.9) |
| WAE | 8 | 2.3 | 0.8(0.5) | 100(--),50(36) | 85.0(3.2) |
| WHC | 1 | 0.2 | 0.1(0.1) | na | 92.3 |
| YEP | 5 | 1.4 | 0.5(0.4) | 50(--),25(59) | 87.2(11.8) |



## MANAGEMENT GOAL

**To manage the fishery at Lake Isabel to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 20/hour and a PSD of 40 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective 2.** Utilize walleye as a secondary predator to limit panfish recruitment and increase angling opportunity.

Strategy 2a. Stock large walleye fingerlings to maintain population levels adequate to limit bluegill and black crappie recruitment and to provide moderate angling opportunity.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Maintain black bullhead densities to a CPUE of 10 or less.

Strategy 3a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 4.** Maintain yellow perch CPUE at 10/gillnet with growth and condition at or above the state average.

Strategy 4a. Monitor yellow perch population utilizing standard survey methods.

**Objective 5.** Maintain bluegill and black crappie population at current densities with growth and condition at or above the state average.

Strategy 5a. Maintain bass and walleye populations at densities that prevent panfish from becoming overpopulated slowing growth.

Strategy 5b. Monitor bluegill and black crappie populations utilizing standard adult survey methods to determine density, growth and condition.

**Objective 6.** Inform, receive, and use continuing input from the *public and other* agencies to assist in the management *of Lake Isabel.*

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2003 and 2006 utilizing eight, 24 hour, ¾ inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2004 and 2006.

3. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

Completed by Dan R Jost, Regional Fisheries Manager, Region 11

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Little Moreau #1 (24-3) **County:** Dewey

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-27 **Date:** January 1994 - December 1998

**Surface Area:** 36 Acres **Management Class:** WWP
**Maximum Depth:** 20 Feet **Mean Depth:** 10 Feet

**Legal Description:** Section 17, Township 16, Range 25

## INVENTORY

Little Moreau #1 is a 36-acre impoundment seven miles south of Timber Lake in north central Dewey County. The artificial lake was named Little Moreau #1 since it is the largest impoundment on Moreau Creek, also known as the Little Moreau River. The dam creating the lake was completed in 1932 by the Works Progress Administration. Flood damage to the dam grade resulted in the South Dakota Department of Game, Fish and Parks rebuilding the structure in 1936. The dam grade and entire lake lies within a Game Production Area owned by the Dept. of Game, Fish & Parks.

The watershed for Little Moreau #1 is relatively large draining all or portions of 52 sections or approximately 33,300 acres. Land use in the watershed is estimated at 78% cultivated agricultural land, 10% native grassland used as pasture and for hay crops, 10% native grass and wooded land within the Game Production Area, and the remaining 2% residences, roads and a golf course. Several small dams and dugouts are found on the upper end of the watershed of Little Moreau #1. Two other waterbodies are found adjacent of the main lake on the Game Production Area. Soil types are sandy loam and clay. From the outlet of Little Moreau #1 water flows down the Moreau Creek to the Moreau River and to Lake Oahe on the Missouri River. Topography ranges from moderately rolling to nearly flat. Several springs in the watershed above the lake consistently flow resulting in Little Moreau #1 remaining at or near full pool at all times. Siltation is not a problem due to the immediate watershed remaining in the State owned land that is not farmed or used to raise or feed cattle. Except for the dam grade and deep areas along the north shore, emergent and submergent vegetation surrounds the entire lake and is heaviest in the portion of the lake above the boat ramp. Access is good with a county gravel road leading to the area. The Parks Division of the Dept. of GF&P maintains the recreation area with hard surface roads, concrete boat ramp, dock, toilets, and camping area.

From the late 1930s to 1955 Little Moreau #1 provided a good fishery. Largemouth bass, black crappie and black bullheads were stocked on several occasions during those years and made up the bulk of the fishery. By the early 1960s the bullhead density had become very high and other fish species began to decline in numbers and size. In 1965 Little Moreau #1 was chemically eradicated eliminating all fish life. Following the rehabilitation the lake was stocked with rainbow and brown trout along with walleye, largemouth bass and channel catfish. The trout stockings provided a good fishery for several years until the warm-water species became established. During the 1970s walleyes fry and fingerlings were stocked on several occasions, but with limited or no recruitment, walleye never developed into a primary fish species. Since 1980 fisheries management at Little Moreau #1 has focused on largemouth bass and panfish. Along with the bass, northern pike provide a strong predator base to balance the three species of panfish that are present at the lake.

**Stocking record for Little Moreau #1, Dewey County**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1934 | 17,000 | BLB | JUN |
| 1934 | 5,000 | BLC | JUN |
| 1934 | 1,000 | LMB | FGL |
| 1935 | 6,000 | BLB | FGL |
| 1935 | 400 | LMB | ADT |
| 1935 | 1,000 | LMB | FGL |
| 1939 | 2,000 | BLB | ADT |
| 1940 | 316 | BLC | ADT |
| 1951 | 2,000 | LMB | ADT |
| 1952 | 1,000 | LMB | FGL |
| 1955 | 3,000 | RBT | FGL |
| 1961 | 189 | NOP | FGL |
| 1966 | 20,043 | BNT | FRY |
| 1966 | 9,999 | RBT | FGL |
| 1966 | 20,010 | RBT | FRY |
| 1966 | 30,000 | WAE | FRY |
| 1967 | 2,000 | CCF | ADT |
| 1967 | 4,000 | LMB | FGL |
| 1967 | 9,000 | RBT | FGL |
| 1967 | 4,000 | SMB | FGL |
| 1967 | 3,000 | WAE | FGL |
| 1968 | 9,991 | RBT | FGL |
| 1968 | 17,500 | WAE | FRY |
| 1971 | 4,000 | WAE | FGL |
| 1973 | 1,800 | WAE | FGL |
| 1974 | 3,600 | WAE | FGL |
| 1974 | 36,000 | WAE | FRY |
| 1975 | 3,600 | LMB | FGL |
| 1976 | 3,600 | LMB | FGL |
| 1978 | 70 | BLC | ADT |
| 1978 | 40,000 | WAE | FRY |
| 1979 | 269 | WAE | ADT |
| 1979 | 2,000 | WAE | FGL |
| 1979 | 50,000 | WAE | FRY |
| 1980 | 1,800 | NOP | FGL |
| 1982 | 300 | BLC | ADT |
| 1983 | 430 | BLC | ADT |
| 1986 | 1,800 | NOP | FGL |
| 1987 | 3,283 | YEP | FGL |
| 1990 | 2,000 | YEP | FGL |
| 1992 | 165 | CCF | ADT |
| 2001 | 118 | LMB | ADT |
| 2002 | 103 | CCF | ADT |
| 2002 | 4,000 | LMB | FGL |
| 2002 | 65 | WAE | ADT |

The most recent fish population survey was conducted at Little Moreau #1 in 2001. Ten, overnight frame net sets in July and four, 10-minute nighttime electrofishing transects in September were used to sample the fish population. A total of 49 largemouth bass were sampled during the fall electrofishing. Of these bass only 19 were above stock size. PSD for stock and greater bass was 68 and condition was very good with a Wr of 125.8. A northern pike frame net CPUE of 4.4 was recorded during the 2001 survey with a PSD of 71 and an RSD-P of 29. The northern pike population has been steadily increasing over the past ten years.

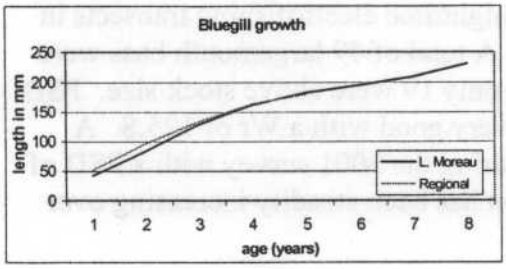
Bluegill was the most abundant panfish species in Little Moreau #1 in 2001 with a CPUE of 39.3. PSD was 65 and RSD-P was 7. These numbers indicate a balanced population. Growth was comparable to the state average and condition was good with a Wr of 107.9. The bluegill population has been slowly increasing in both density and size structure over the past ten years. Black Crappies were sampled with a CPUE of 19.6, PSD of 52 and an RSD-P of 1. Wr was slightly below and growth was well below the state and regional average. Yellow perch were the third panfish species sampled in 2001 at Little Moreau #1. A frame net CPUE of 2.5 was recorded with a PSD of 68 and an RSD-P of 4. Condition was below average with a Wr of 93.6 and growth was slow. Several of the fish sampled were 7 and 8 years old which is above the average life expectancy of perch found in most lakes. Black bullhead numbers increased over the past five years but are similar to the twenty-year CPUE average for Little Moreau #1. A bullhead CPUE of 21.8 was sampled with a PSD of 96. Growth was well above the state average but condition was poor with a Wr of 80.3.

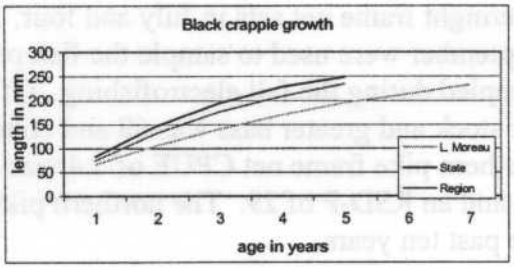
**Total catch of four, 10-minute transects of electrofishing at Little Moreau #1, Dewey County, September 25, 2001.**

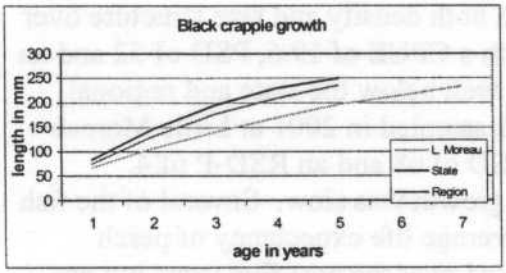
| LMB | No. | % | CPUE fish/hr (80%CI) | PSD (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| stock | 19 | 38.8 | 28.5(10.1) | 68(19) | 125.8(2.4) |
| Sub-stock | 30 | 61.2 | 45.0(22.9) | -- | 136.2(11.5) |

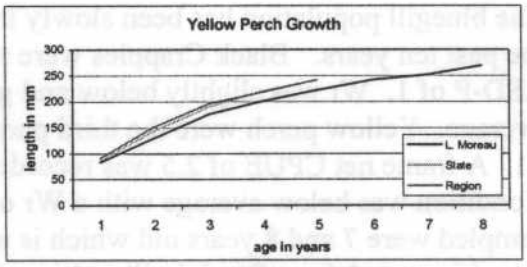
**Total catch of ten, 24 hour, 3/4-inch frame nets at Little Moreau #1, Dewey County, 2001.**

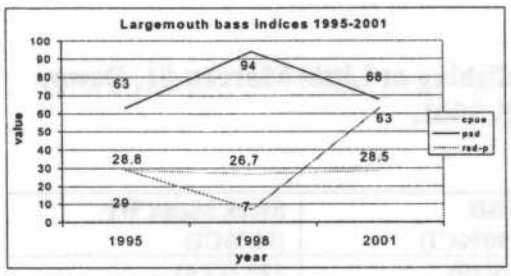
| Spec. | No. | % | CPUE (80%CI) | PSD, RSD-P (90%CI) | Stock Mean Wr(90%CI) |
|---|---|---|---|---|---|
| BLB | 218 | 24.7 | 21.8(9.4) | 96(2), 7(3) | 80.3(1.3) |
| BLC | 196 | 22.2 | 19.6(8.0) | 52(7), 1(2) | 95.8(0.7) |
| BLG | 393 | 44.5 | 39.3(14.1) | 65(4), 7(2) | 107.9(1.8) |
| HYB | 2 | 0.2 | ( ) | na | na |
| GSF | 2 | 0.2 | 0.2(0.2) | na | 107.6(26.7) |
| LMB | 3 | 0.3 | 0.3(0.3) | na | na |
| NOP | 44 | 5.0 | 4.4(1.3) | 71(12), 29(12) | 94.7(4.3) |
| YEP | 25 | 2.8 | 2.5(1.1) | 68(16), 20(14) | 93.6(3.2) |

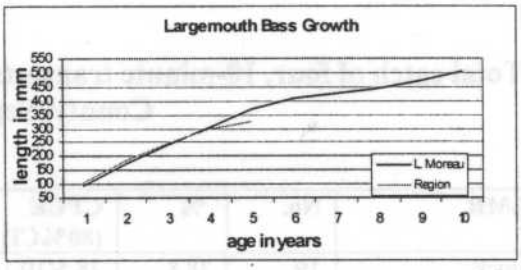



## MANAGEMENT GOAL

**][o manage the fishery at Little Moreau #1 to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population densities with nighttime electrofishing CPUE of 30\hour and a PSD of 60 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Utilize northern pike as a secondary predator to limit panfish recruitment and to provide increased angling opportunity.

Strategy 2a. Monitor northern pike population to determine density and natural recruitment success.

**Objective 3.** Maintain panfish PSD values between 50 and 80 with growth and condition factors at or above the state average.

Strategy 3a. Maintain largemouth bass and northern pike populations at densities high enough to limit panfish recruitment and prevent overpopulation and slow growth rates.

**Objective 4.** Maintain black bullhead densities with a CPUE of 30 or less.

Strategy 4a. Monitor black bullhead population using standard fish population survey methods.

Strategy 4b. Utilize Dept. crews to physically remove black bullheads form Little Moreau #1.

**Objective 5.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Little Moreau #1.

## 5 YEAR OPERATIONAL PLAN

1. Conduct a standard fisheries population survey in 2004 and 2007 utilizing eight, 24 hour, 3/4 inch frame net sets, two, 150 foot experimental gill net sets, and at least 1 hour of nighttime electrofishing to monitor all fish species.

2. Physically remove all black bullheads captured at the time of the 2004 and 2007 lake surveys.

3. The local Conservation Officer and other GF&P staff should solicit input from private and public sources and provide information to the Regional Fisheries manager on a timely basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008.

Completed by Dan R Jost, ARS-Fisheries, Region Il

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Little Moreau #2 (24-2) **County:** Dewey

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 8 Acres **Management Class:** CWP
**Maximum Depth:** 30 Feet **Mean Depth:** 10 Feet

**Legal Description:** Section 8, Township 16, Range 25

## INVENTORY

Little Moreau #2 is an 8-acre impoundment seven miles south of Timber Lake in north central Dewey County. The artificial lake was named Little Moreau #2 since it is the second lake located within the Little Moreau Game Production Area and State Recreation Area, a 3,040-acre area along Moreau Creek, also known as the Little Moreau River. Little Moreau #2 was created in 1960 when an earthen dam with trickle tube spillway was constructed by the Dept. of Game, Fish and Parks on a tributary directly north of the impoundment known as Little Moreau #1.

The watershed for Little Moreau #2 is small at approximately 1,300 acres. The land in the watershed is comprised of 95% native grass that is normally not hayed or grazed, 3% shelterbelts and woody draws and 2% wildlife food plot. The entire watershed lies within the State owned Game Production Area. There are no waterbodies within the watershed, but springs provide a continuous inflow of fresh water into Little Moreau #2 and the impoundment's water level has very little fluctuation. Soils are primarily sandy loam with the topography varying from nearly level to steep slopes. From the outlet of Little Moreau #2, water runs into Little Moreau #1, to the Moreau Creek, the Moreau River, and eventually to Lake Oahe on the Missouri River. Due to the watershed being within the GPA that is native grassland, siltation is not a problem at Little Moreau #2. Very little emergent or submergent vegetation is present and water clarity is exceptional year around. There are no boat ramps or other facilities at Little Moreau #2, but access is good via a county road and good gravel trail leading to the dam grade and east edge of the lake.

Since its creation in 1960, Little Moreau #2 has been primarily managed as a cold water fishery. Brown trout fingerlings were originally stocked in 1960. Annual stockings of rainbow trout fingerlings were completed from 1961 through 1974 with one additional stocking in 1977. This annual stocking of fingerlings provided a "put-grow-take" type of fishery that provided good fishing opportunity on years that stockings were successful. Prior to 1974, sources outside of the Dept. of Game, Fish and Parks had introduced largemouth bass and black crappie into Little Moreau #2. With the introduction of warm water species that were predatory to trout fingerlings, trout fishing opportunity declined and management goals were switched from cold water, to a warm water fishery. White crappie adults and bluegill adults were stocked in 1978 and 1980. Management with warm water species was continued until 1986. Little Moreau #2 only developed a marginally successful warm water fishery that was less attractive to anglers than the excellent fishery at Little Moreau #1 located in the same public use area and with better user facilities.

In 1986 Little Moreau #2 was chemically eradicated and the management plan was rewritten to once again be a cold water fishery with rainbow trout the primary species. Catchable rainbow trout would be used to provide the only "put & take" trout fishery in north central South Dakota. At this time a baitfish restriction was placed at the lake to prevent the introduction of unwanted species. From the time of eradication to present, the management of Little Moreau #2 has been to stock 2,000 rainbow trout fingerlings twice annually providing trout fishing opportunity in an area that only warm water fisheries are present. The current management of the lake has been very successful with anglers utilizing the lake throughout the year. Some trout carry over and show good growth rates providing the unique opportunity to catch a larger fish in a "put & take" fishery.

In 1997 it was evident that black crappies had once again found their way into Little Moreau #2. The larger trout catchables do not seem to be adversely affected by the second species. Crappies are being removed annually from the lake and stocked into other Regional waters as needed.

**Stocking record for Little Moreau #2, Dewey County, 1974 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1974 | 2,000 | RBT | FGL |
| 1977 | 2,000 | RBT | FGL |
| 1978 | 95 | WHC | ADT |
| 1980 | 100 | BLG | ADT |
| 1988 | 4,000 | RBT | CAT |
| 1989 | 4,000 | RBT | CAT |
| 1990 | 4,000 | RBT | CAT |
| 1991 | 4,000 | RBT | CAT |
| 1992 | 4,000 | RBT | CAT |
| 1993 | 4,000 | RBT | CAT |
| 1994 | 2,000 | RBT | CAT |
| 1995 | 4,030 | RBT | CAT |
| 1996 | 3,880 | RBT | CAT |
| 1997 | 4,000 | RBT | CAT |
| 1998 | 4,000 | RBT | CAT |
| 1999 | 4,000 | RBT | CAT |
| 2000 | 4,000 | RBT | CAT |
| 2001 | 4,000 | RBT | CAT |
| 2002 | 4,000 | RBT | CAT |

The most recent fish population survey was conducted at Little Moreau #2 during June 2000. Eight, 3/4-inch, overnight frame net sets and two, '/4-inch frame net sets were used to sample the fish population. Black crappie and rainbow trout were the only fish species sampled. Black crappie densities were found to have decreased from a CPUE of 140 in 1997 to 27.9 in 2000. The annual removal of black crappie by Dept. crews appears to be successful in limiting densities while providing a source for black crappie adults to be stocked in other waters. The majority of the black crappie are small (under 200 mm) with a PSD of 25 and an RSD-P of 1. The "put & take' rainbow trout population is stable with a total of 70 trout being captured in 1997 and 72 in 2000. No lengths or weights were taken from trout due the warm water temperatures causing excessive stress of the fish.

**Total catch of eight,** 24 **hour, 3/4 inch frame nets at Little Moreau #2, Dewey County June 26, 2000.**

| Spec. | No. | Low 80% CI | Mean CPUE | Up 80% CI | Low 90% CI | PSD | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| **RBT** | 72 | 5.1 | 9.0 | 12.9 | NA | NA | NA | NA | NA | NA |
| **BLC** | 223 | 15.0 | 27.9 | 40.8 | 20 | 25 | 31 | 92.8 | 93.6 | 94.4 |

**Average back-calculated lengths for each age class of Black Crappie at Little Moreau #2, Dewey County, 2000.**

| | | | Age | | | |
|---|---|---|---|---|---|---|
| **Year Class** | **Age** | **N** | **1** | **2** | **3** | **4** |
| **1998** | 2 | 16 | 91 | 139 | | |
| **1997** | 3 | 13 | 79 | 148 | 176 | |
| **1996** | 4 | 26 | 83 | 128 | 176 | 212 |
| **Sample Size** | | 55 | | | | |
| **Population Mannlmml** | | | 84 | 138 | 176 | 212 |

## MANAGEMENT GOAL

**To manage the fishery at Little Moreau #2 to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Manage Little Moreau #2 as a cold water, "put and take" trout fishery with a catchable rainbow trout CPUE of 5 or greater maintaining annual angler use and harvest rates at a level justifying continued stocking.

Strategy la. Twice annually stock rainbow trout catchable size fish to maintain fishery at current level.

Strategy lb. Monitor rainbow trout population using standard survey methods to determine density, annual survival and growth.

**Objective** 2. Maintain black crappie population densities at a frame net CPUE of 35 or less.

Strategy 2a. Annually remove black crappies and utilize as a source for other stocking needs.

Strategy 2b. Monitor black crappie population using standard survey methods to determine density, growth and condition.

**Objective 3.** Prevent the introduction of any other species in Little Moreau #2.

Strategy 3a. Maintain the regulation prohibiting the use of possession of baitfish at Little Moreau #2.

**Objective** 4. Inform, receive, and use continuing input from the public and other agencies to assist in the management of Little Moreau #2.

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## 5 YEAR OPERATIONAL PLAN

1. Stock 2,000 catchable rainbow trout twice per year 2003 - 2007.

2. Annually remove all black crappies feasible and utilize as a source of adult crappies for other waters.

3. Maintain regulation restricting the use and possession of baitfish at Little Moreau #2.

4. Conduct a standard fisheries population survey in 2005 to monitor rainbow trout and black crappie populations.

5. The local Conservation Officer and other GF&P staff should solicit input from private and public sources and provide information to the Regional Fisheries Manager on a timely basis.

6. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008.

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Completed by Dan R Jost, Regional Fisheries Manager, Region 11

FIVE YEAR FISHERIES MANAGEMENT PLAN

Water: Lake Louise (33-1) **County:** Hand

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 165 Acres **Management Class:** WWP
**Maximum Depth:** 20 Feet **Mean Depth:** 8 Feet

**Legal Description:** Sections 4 & 5, Township 113, Range 69

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## INVENTORY

Lake Louise is a 165-acre impoundment six miles north and seven west of Miller in central Hand County. The artificial lake was constructed in 1939 by the Works Progress Administration (WPA). The earthen dam and concrete spillway formed a barrier on Wolff Creek allowing for the creation of the lake. The dam grade along with the majority of the lake lies on State owned land that is managed by the South Dakota Dept. of Game, Fish and Parks, Division of Parks and Recreation as a State Recreation Area.

The watershed for Lake Louise is approximately 87,040 acres or 136 square miles. Land use in the watershed is 65% cultivated farmland consisting mainly of row crops, 30% pasture and hayland, and 5% roads, shelterbelts and residences. The immediate shoreline is native grasses, wooded areas and State Recreation Area. Soils in the watershed are primarily sandy loam with topography varying from nearly flat to gently rolling. Emergent vegetation, consisting mainly of bulrush, is found around the majority of the shoreline except for the dam grade and swimming beach. Submergent vegetation grows to a depth of 5 feet and becomes very dense in the upper % of the lake, most notably when water levels are less than spillway level. Siltation is evident in the upper end of the lake along the main creek arm. No formal siltation survey has been completed at Lake Louise. From the outlet of Lake Louise, water flows down Wolff Creek and eventually to the James River. Access to Lake Louise is great via county roads from ether SD Hwy 45 or US Hwy 14. Lake Louise is part of a State Park providing excellent user facilities including boat ramp, picnic and camping area, paved access roads, rest rooms, fish cleaning area and handicapped accessible fishing pier.

Earliest records indicate that Lake Louise was stocked with fathead minnows, black bullheads, black crappies and largemouth bass shortly after construction. There are no records of fisheries management activities during the 1940s but a major winterkill eliminated almost all fish life in 1951 - 1952. Extensive fish stockings were completed during the period between 1952 through 1955. Species stocked include black crappie, largemouth bass, and walleye. Despite stocking efforts the gamefish community suffered from limited reproduction and recruitment due to the large number of common carp present in Lake Louise at the time. The lake was chemically eradicated in 1959. After eradication, stocking efforts focused on northern pike in an attempt to limit carp recruitment and lower densities to manageable levels. Unfortunately the management with northern pike was unable to provide a viable fishery in Lake Louise and the lake was eradicated again in 1977. Restocking efforts in 1978 and 1979 focused on predator species, but instead of northern pike, largemouth bass and walleye were reintroduced. Largemouth bass quickly became the dominant species with excellent reproduction and recruitment. There are no recorded stockings of bluegill in Lake Louise, however, they have been the dominant panfish since 1977. Bluegill reproduction and recruitment is excellent and walleye have been used as a secondary predator to control densities. No walleye recruitment has been recorded in Lake Louise, but since 1979 walleyes have been stocked during 12 different years. The degree of success of the walleye stockings varies from excellent to marginal given a particular stocked yearclass. Since the rehabilitation in 1977, common carp have not been present in the lake and black bullhead densities are very low.

**Stocking record for Lake Louise, Hand county, 1977 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1978 | 16,400 | CCF | FGL |
| 1978 | 17,600 | LMB | FGL |
| 1978 | 80,000 | RBT | FGL |
| 1978 | 85,000 | WAE | FRY |
| 1978 | 1,000 | YEP | FGL |
| 1979 | 8,250 | CCF | FGL |
| 1979 | 6,800 | LMB | FGL |
| 1979 | 6,840 | RBT | FGL |
| 1979 | 10,000 | WAE | FGL |
| 1980 | 62,000 | WAE | FGL |
| 1982 | 25,000 | WAE | FRY |
| 1983 | 13,500 | WAE | FRY |
| 1986 | 6,750 | WAE | FGL |
| 1988 | 6,750 | WAE | FGL |
| 1989 | 5,000 | WAE | FGL |
| 1991 | 13,500 | WAE | FGL |
| 1993 | 3,400 | WAE | FGL |
| 1995 | 1,650 | WAE | FGL |
| 1997 | 4,125 | WAE | FGL |
| 1999 | 4,250 | WAE | FGL |

The most recent fish population survey was conducted at Lake Louise in 2001. Ten, overnight, ¾-inch frame net sets and two, 150-foot experimental gill net sets were used to sample the adult fish population in June. Six, 10-minute periods of electrofishing were also completed in October to sample largemouth bass.

Over the past twenty years, Lake Louise has provided excellent bluegill fishing opportunity. During the 2001 survey bluegill density was lower than that recorded during other recent surveys. The frame net CPUE was 14.7 with a PSD of 96 and an RSD-P of 12. Fish condition was excellent with a Wr of 113.1. With lower densities, size structure had increased and the overall population looked excellent.

During the 60 minutes of electrofishing in 2001, a total of 82 largemouth bass were sampled of which 66 were stock length or larger. PSD was 88 and RSD-P was 17. These are the largest population structure indices recorded in recent years. Condition was also above average with a Wr of 110.2.

Yellow perch have been a secondary panfish in Lake Louise since renovation in 1977. With a high bluegill density, the perch population is often found to be slow growing and have small size structure. Gill net CPUE for perch in 2001 was 28.5, higher than in the past 5 surveys. PSD was 56 and RSD-p was 5. As expected the yellow perch were slow growing and condition was average with a Wr of 99.2.

Large walleye fingerlings have been stocked biannually since 1989 to provide a secondary predator and increased angling opportunity. The success of the walleye stocking has been mixed with some year classes of stocked fish recruiting into the adult population and demonstrating good growth and condition while other stocks have not been evident in the population when surveyed. Walleye stocking should be evaluated to determine if continued stocking is making a contribution to the fish population or angling opportunity in Lake Louise.

**Total catch of six, 10-minute periods of electrofishing at Lake Louise, Hand County, October 16, 2001.**

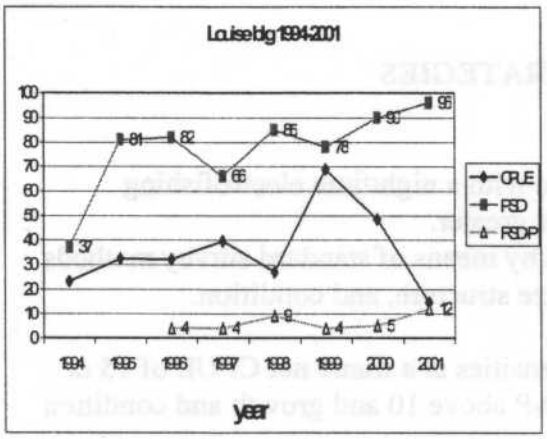
| Spec. | No. | % | CPUE (80%CI) | PSD,RSD-P (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| LMB | 82 | 98.7 | 82 .0 (20.4) | 88(7),17(8) | 110.2(1.0) |
| WAE | 1 | 1.3 | 1.0(1.5) | -- | 85.7(--) |
| Total | 83 | | | | |

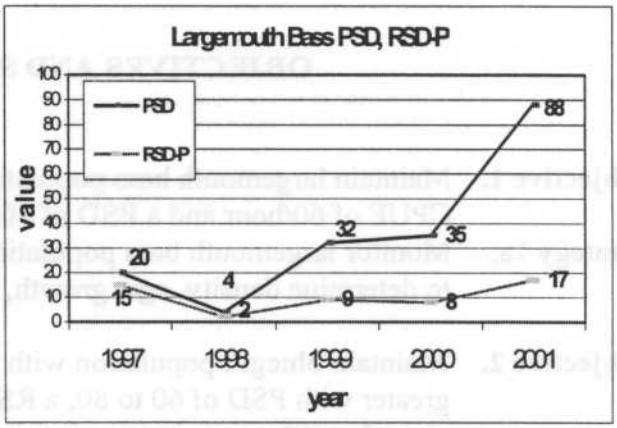
**Total catch of two, 150' experimental gill net sets at Lake Louise, Hand County, 2001.**

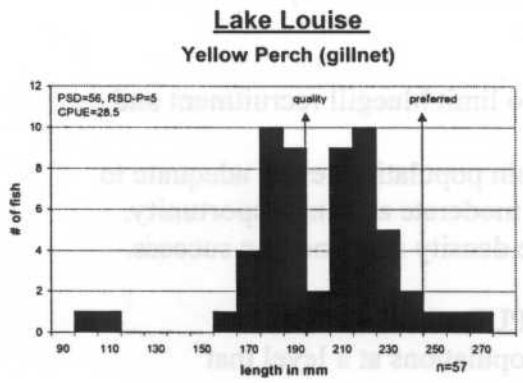
| Spec. | No. | % | CPUE (80%CI) | PSD,RSD-P (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| WAE | 6 | 9.5 | 3.0 (9.2) | 67(43) | 97.9 (4.2) |
| YEP | 57 | 90.5 | 28.5(72.3) | 56(12),5(6) | 99.2(0.2) |
| Total | 63 | | | | |

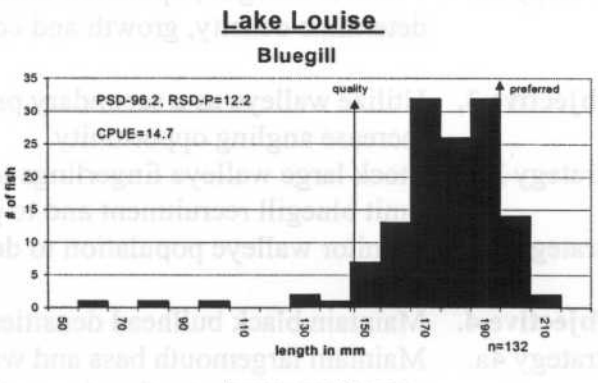
**Total catch of ten, 3/4 inch frame nets at Lake Louise, Hand County, 2001.**

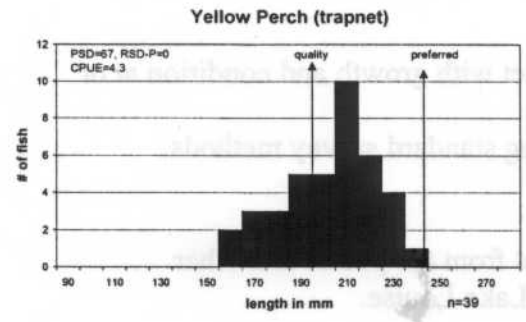
| Spec. | No. | % | CPUE (80%CI) | PSD,RSD-P (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| BLB | 25 | 12.6 | 2.8(1.1) | 64(17),56(17) | 89.7(1.6) |
| BLG | 132 | 66.7 | 14.7(4.0) | 96(3),12(5) | 113.1(0.5) |
| LMB | 1 | 0.5 | 0.1(0.2) | ----- | 76.7(--) |
| YEP | 40 | 20.2 | 4.4(1.9) | 68(13),0(--) | 97.9(1.1) |
| Total | 198 | | | | |

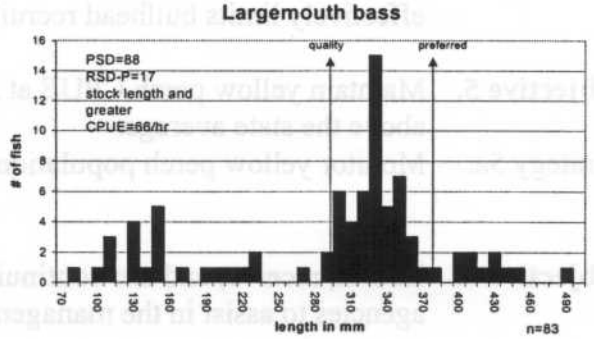


## MANAGEMENT GOAL

**To manage the fishery at Lake Louise to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 60/hour and a PSD of 40 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective 2.** Maintain bluegill population with densities at a frame net CPUE of 15 or greater with PSD of 60 to 80, a RSD-P above 10 and growth and condition at or above the state average.

Strategy 2a. Maintain bass and walleye populations at densities that prevent bluegill from becoming overpopulated slowing growth.

Strategy 2b. Monitor bluegill population utilizing standard adult survey methods to determine density, growth and condition.

**Objective 3.** Utilize walleye as a secondary predator to limit bluegill recruitment and increase angling opportunity.

Strategy 3a. Stock large walleye fingerlings to maintain population levels adequate to limit bluegill recruitment and to provide moderate angling opportunity.

Strategy 3b. Monitor walleye population to determine density and stocking success.

**Objective 4.** Maintain black bullhead densities to a CPUE of 10 or less.

Strategy 4a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 5.** Maintain yellow perch CPUE at 20/gillnet with growth and condition at or above the state average.

Strategy 5a. Monitor yellow perch population utilizing standard survey methods.

**Objective 6.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Lake Louise.

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2003 and 2006 utilizing eight, 24 hour, ¾ inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2004 and 2006.

3. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

Completed by Dan R Jost, Regional Fisheries Manager, Region 11

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Jones Lake (33-2)

**County:** Hand

**Present Plan:** F-21-R-35
**Date:** January 2003 - December 2007

**Previous Plan:** F-21-R-30
**Date:** January 1998 - December 2002

**Surface Area:** 86 Acres
**Management Class:** WSP

**Maximum Depth:** 18 Feet
**Mean Depth:** 8.6 Feet

**Legal Description:** Sections 25 & 26, Township 112 N, Range 68 W

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## INVENTORY

Jones Lake is a 100-acre impoundment three miles south and one and one half mile east of the City of Miller in central Hand County. Jones Lake was named after Eden Allen Jones, the owner of the land on which the dam was constructed. The artificial impoundment was created in 1937 when the Works Progress Administration (WPA) completed construction of an earthen dam on the upper end of Turtle Creek. To allow for the construction of the dam and creation of the lake, two easement contracts were granted to the South Dakota Dept. of Game, Fish & Parks for public use of the lake, access road, and a 12-foot strip of land above the high water contour. These easements are recorded with the Hand County Register of Deeds, Misc. Book 26, page 409 and Misc. Book 33, page 350. In 1957 the Dept of Game, Fish &Parks purchased the SE1/4, SE1/4, S25, T112, R68 (Misc. Book 36, page 22), and the E1/2, NE1/4, S36, T112, R68 in 1959 (Misc. Book 97, page 114).

The watershed of Jones Lake is approximately 18,000 acres or 28 square miles. The topography varies from nearly level to undulating with soils of loams and clays. Land use in the watershed is estimated at 65 percent cultivated cropland, 30 native grassland utilized for pasture and hay crops, and 5 percent roads, shelter belts, and farm sites. There are 13 dams and dugouts located in the watershed, but no major water bodies. The immediate shoreline area is 100% native grass. Moderate siltation is apparent at Jones Lake and has become the major degrading factor effecting the fishery. Very little emergent vegetation is present at Jones Lake. Emergents are mainly concentrated in the upper 1/3 of the lake. Submergents are found throughout the lake and grow to a depth of 5-foot. Submergents become very dense during summer months and can impede shore fishing opportunity as well as boat traffic. From the outlet of Jones Lake water flows northeasterly down Turtle Creek, to Wolff Creek, the James River and eventually the Missouri River. Access to the lake is good from SD Hwy 45 with a gravel trail leading

from a county road to the lake access area on the west edge of the lake. A temporary dirt levee was installed in 1971 to divert water away from the failing primary spillway to the secondary spillway. The problem was permanently repaired in the late 1980s. A concrete boat ramp, dock and vault toilet are located at the access area. The Parks Division of the SD Dept. of GF&P maintains the area

Jones Lake has provided a recreational fishery since its construction in 1937. The first recorded management of the lake consisted of the stocking of black bullhead, largemouth bass, black crappie and yellow perch, all prior to 1940. Northern pike were introduced into Jones in 1943 and again stocked in 1945. Throughout the 1940s and 50s Jones Lake provided good fishing opportunity, mainly for bullheads and crappies. Though there is not a record of stocking, bluegill became the dominant panfish species and provided a reputable fishery during the 1960s and 70s. By 1980, black bullhead densities had increased to the point that limited bluegill growth and recruitment. Stunted bullheads dominated the fish population. The fishery, as a whole, became less than satisfactory. Walleyes were introduced in 1978 in an attempt to provide an effective predator to limit bullhead numbers. Supplemental stockings of walleyes occurred on nine occasions between 1980 and 1996 with very little effect on the bullhead population. From 1997 to 1999 Jones Lake was involved in a study to compare the effectiveness of saugeye and walleye as predators on panfish and bullhead populations in small ponds. At the completion of the study it was found that in Jones Lake, stocked walleye and saugeye had low recruitment and did not have a noticeable effect on the black bullhead population.

Jones Lake has a reputation of partial winterkill resulting in the loss of most or all game fish leaving only rough fish remaining. The last instance of winterkill occurred in 2001. Test netting in the spring revealed that only a moderate population of black bullhead remained in the lake. Intensive stockings of largemouth bass, walleye and yellow perch were completed that summer to reestablish game fish in the lake.

**Stocking record for Jones Lake, Hand County, 1988 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1988 | 5,000 | WAE | FGL |
| 1989 | 5,000 | WAE | FGL |
| 1991 | 464 | BLC | ADT |
| 1991 | 10,000 | WAE | FGL |
| 1992 | 5,000 | LMB | FGl |
| 1993 | 5,000 | LMB | FGL |
| 1994 | 2,100 | WAE | FGL |
| 1995 | 850 | WAE | FGL |
| 1996 | 17,60 | WAE | FGL |
| 1997 | 2,100 | WAE | FGL |
| 1997 | 2,100 | SXW | FGL |
| 1998 | 864 | SXW | FGL |
| 1998 | 1,440 | WAE | FGL |
| 1999 | 720 | SXW | FGL |
| 1999 | 2,100 | WAE | FGL |
| 2001 | 203 | LMB | ADT |
| 2001 | 8,400 | LMB | FGL |
| 2001 | 2,500 | WAE | FGL |
| 2001 | 900 | YEP | ADT |

In order to follow up on the winterkill and evaluate restocking efforts, a general fish population survey was conducted in 2002. Nine overnight trap net sets were used to monitor the fish population in June and four, 10-minute periods of electrofishing were completed in October. No experimental gill nets were used during this survey.

The 2001 largemouth bass stocking was very successful with a catch per hour of 145.5 bass being sampled during the electrofishing portion of the survey. Seventy-seven of these bass were one-year-old fish that were part of the 8,400 fingerlings stocked the previous year. The remaining 13 fish sampled were adult fish, apparently from the 203 adults stocked in 2001. Hopefully the largemouth bass population will sufficiently control the black bullheads in Jones Lake. A 15-inch minimum size limit remains in effect at Jones.

There is a fairly large black bullhead population in Jones Lake. The frame net CPUE was 42.2 in 2001 with a PSD value of 44. Bullhead condition was poor with a Wr of 84. Black crappies were not stocked following the winterkill, but a CPUE of 5.0 was documented from the frame nets. Size structure was small and most crappies were of the same year class. It is uncertain if the crappies came from the watershed, unauthorized stocking, or from a remnant population that survived in the lake. The stocking of prespawn yellow perch adults in 2001 was also successful. It appears that the perch produced a year class of young fish and several of the larger adults were sampled in the frame nets. None of the 2,500 large walleye fingerlings stocking in the fall of 2001 were sampled in the frame nets or during electrofishing.

**Total catch of nine, overnight %-inch frame nets at Jones Lake, Hand County, June 24-26, 2002.**

| **Species** | **#** | **%** | **CPUE** | **80%** C.I. | CPMean CPUE* | **PSD** | **RSD-P** | **Mean** |
|---|---|---|---|---|---|---|---|---|
| Black Bullhead | 380 | 79.7 | 42.2 | ±13.5 | 216.6 | 44 | 0 | 84 |
| Yellow Perch | 46 | 9.6 | 5.1 | ±3.1 | 5.2 | 100 | 43 | 75 |
| Black Crappie | 45 | 9.4 | 5.0 | ±3.8 | 2.4 | 100 | 100 | 103 |
| Largemouth Bass | 4 | 0.8 | 0.4 | ±0.5 | 0.2 | -- | -- | 99 |
| Golden Shiner | 2 | 0.4 | 0.2 | ±0.2 | 0.1 | -- | -- | 85 |

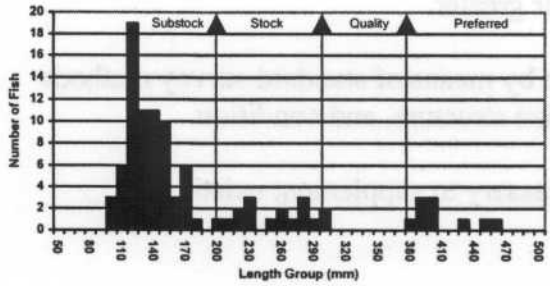
* Eleven years (1982-84, 1986-88, 1990, 1993, 1995, 1998, and 2001)
** Severe winterkill during the winter of 2000/2001, but not total

**Total catch from four, ten-minute runs of fall nighttime electrofishing on Jones Lake, Hand County, Oct. 15, 2002.**

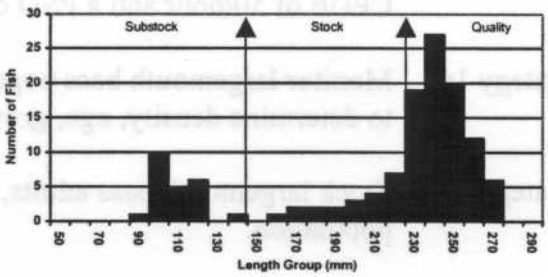
| **Species** | **#** | **%** | **CPUE** | **80%** C.I. | CPS* | **PSD** | **RSD-P** | **Mean** |
|---|---|---|---|---|---|---|---|---|
| Largemouth Bass | 97 | 100 | 145.5 | ±59.8 | -- | 63 | 37 | 109 |

* First time electrofished and a new population after winterkill of 2000/2001

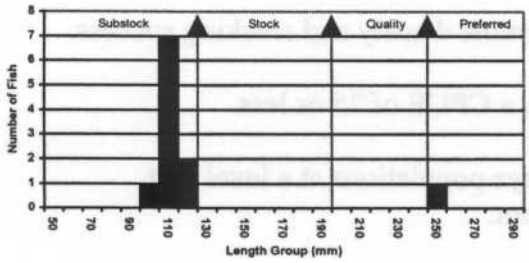
Largemouth Bass, Jones Lake, 2002



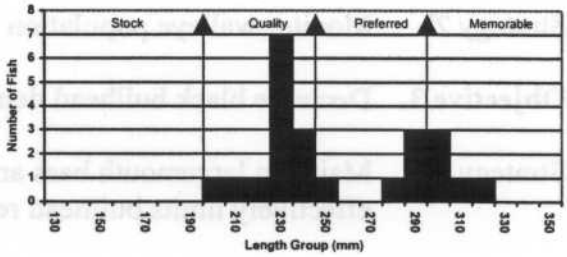

Black Bullhead, Jones Lake, 2002




Black Crappie, Jones Lake, 2002




Yellow Perch, Jones Lake, 2002




## MANAGEMENT GOAL

**To manage the fishery at Jones Lake to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 50/hour and a PSD of 40 or greater.

Strategy Ia. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

Strategy lb. Stock largemouth bass adults, if necessary to supplement existing population.

**Objective** 2. Utilize walleye as a secondary predator to limit panfish recruitment and increase angling opportunity.

Strategy 2a. Stock large walleye fingerlings to maintain population levels adequate to limit black crappie and black bullhead recruitment and to provide moderate angling opportunity.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Decrease black bullhead densities to a CPUE of 25 or less.

Strategy 3a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 4.** Maintain yellow perch CPUE at 10/gillnet with growth and condition at or above the state average.

Strategy 4a. Monitor yellow perch population utilizing standard survey methods.

Strategy 4b. Stock yellow perch adults, if necessary, to supplement existing population.

**Objective 5.** Maintain black crappie population at current densities with growth and condition at or above the state average.

Strategy 5a. Monitor black crappie population to determine growth and size structure and to monitor recruitment of young fish into the adult population.

**Objective 6.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Jones Lake.

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2004 and 2007 utilizing eight, 24 hour, $^{3}/_{a}$ inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2004 and 2006.

3. If largemouth bass have a CPUE of less than 30 per hour of nighttime electrofishing in 2004, stock with adult bass at a rate of 10/surface acre.

4. If yellow perch CPUE is less than 10 per gill net catch, stock with adults at a rate of 10/acre to supplement population.

5. Remove all black bullheads captured during the 2004 and 2006 surveys.

6. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries manager on a regular basis.

7. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

Completed by Dan R Jost, Regional Fisheries Manager, Region 11

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Brakke Lake (45-1) **County:** Lyman

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 130 Acres **Management Class:** WWP
**Maximum Depth:** 17 Feet **Mean Depth:** 5 Feet

**Legal Description:** Sections 16, 21 & 22, Township 105, Range 76

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## INVENTORY

Brakke Lake is a 135-acre artificial impoundment located 5 miles east of the City of Presho in southcentral Lyman County. The Civilian Conservation Corps (CCC) created the artificial lake in 1935 with the construction of an earthen dam across an unnamed tributary of Medicine Creek. To allow for the construction of the dam grade and creation of the lake, flooding and public use easements were granted to the State of South Dakota and the Dept. of Game, Fish & Parks for the lake and a strip of land 12 feet above the high water contour. These easements are recorded with the Lyman County Register of Deeds, Misc. Book 7, page 396. The South Dakota Dept. of Game, Fish & Parks purchased 160 acres containing the dam grade and lower 1/3 of the lake in 1948. This property is made up of the E1/2, SW1/4 and the W1/2, SE1/4 of Section 16.

The watershed of Brakke Lake contains all or most of 16 square miles or approximately 10,240 acres. The topography varies from near level to gently rolling with medium to deep clay soils. Land use in the watershed is estimated at 65% cultivated cropland, 30% native grass land utilized for pasture and hay crops and the remaining 5% treebelts, farmsteads and roadways. There are several small artificial dams, some of which are breached, and natural marsh areas in the watershed but no major waterbodies. During the past 20 years more land in the watershed has been placed into production as cultivated cropland, include some in the immediate area adjacent to the lake. Due to the increase in cultivated land, it is thought that siltation make be of increased concern. Shoreline erosion also adds to the siltation levels in Brakke Lake. Emergent vegetation, mainly cattail, surrounds the majority of the shoreline at Brakke. Submergents are found scattered in shallow areas of the lake and grow to a depth of 4 feet. From the outlet of Brakke Lake water flows to Medicine Creek, and eventually to Lake Francis Case on the Missouri River. Access is good from old Hwy 16 adjacent to US 1-90. The access area on the west edge of the lake is in good condition with concrete boat ramp and vault toilet. Dam grade and spillway are in good condition.

The first recorded fisheries management activity at Brakke Dam took place in 1939 when 4,000 black bullhead fingerlings were stocked. During the 1940s largemouth bass, bluegill, and walleye were introduced into Brakke. Walleyes were again stocked in 1953. During these early years it is reported that Brakke Lake provided good fishing opportunity for bass, bluegill and bullhead. In 1957 a major winter fishkill resulted in the lose of nearly all the lake's gamefish. In the early 1960s largemouth bass and walleyes were restocked, with eight more walleye stockings from 1966 to 1980. Common carp and white sucker were first documented at Brakke Lake in 1968. Carp numbers continued to increase until they reached unacceptable levels in the late 1970s. With the high density carp population, other fish species suffered from poor recruitment and decreased relative condition. In 1983 Brakke Lake was chemically eradicated to eliminate all fish life. For a three-year period following eradication, extensive stockings of largemouth bass, walleye, yellow perch, and channel catfish were completed. During the 1990s Brakke Lake was supplamentally stocked with bass and walleye. Carp have not been documented in Brakke Lake since the 1983 eradication.

**Stocking record for Brakke Lake, Lyman County**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1939 | 4,000 | BLB | FGL |
| 1940 | 1,000 | LMB | FGL |
| 1943 | 2,000 | LMB | FGL |
| 1947 | 350 | BLG | ADT |
| 1947 | 1,500 | LMB | FGL |
| 1949 | 300,000 | WAE | FRY |
| 1953 | 88,000 | WAE | FRY |
| 1953 | 3,000 | WAE | FRY |
| 1963 | 10,000 | WAE | FGL |
| 1966 | 3,000 | LMB | FGL |
| 1966 | 15,000 | WAE | FRY |
| 1967 | 14,000 | WAE | FGL |
| 1969 | 13,000 | WAE | FGL |
| 1971 | 14,000 | WAE | FGL |
| 1972 | 1,250 | CCF | FGL |
| 1972 | 13,500 | WAE | FGL |
| 1975 | 10,000 | WAE | FGL |
| 1977 | 20,000 | WAE | FGL |
| 1980 | 5,750 | CCF | FGL |
| 1980 | 6,900 | WAE | FGL |
| 1982 | 5,250 | LMB | FGL |
| 1984 | 14,000 | CCF | FGL |
| 1984 | 10,500 | LMB | FGL |
| 1984 | 70,245 | RBT | FGL |
| 1984 | 68,000 | WAE | FRY |
| 1984 | 62 | YEP | ADT |
| 1984 | 208,000 | YEP | FRY |
| 1985 | 13,500 | CCF | FGL |
| 1985 | 24,000 | LMB | FGL |
| 1985 | 32,000 | WAE | FGL |
| 1986 | 10,550 | CCF | FGL |
| 1986 | 8,000 | YEP | FGL |
| 1991 | 5,000 | LMB | FGL |
| 1992 | 6,750 | LMB | FGL |
| 1993 | 1,400 | WAE | FGL |
| 1996 | 2,010 | WAE | FGL |
| 1997 | 3,250 | WAE | FGL |
| 1999 | 1,970 | WAE | FGL |

Brakke Lake's fish population was most recently surveyed in 2001. Eight, overnight frame net sets in June and one hour of nighttime electrofishing in October were used during the survey. Bluegill was the most frequently sampled species in the frame nets with a CPUE of 13.3. This was dramatically lower than the CPUE of 121.0 recorded three years prior. Size structure was unbalanced on the large side with a PSD of 94 and an RSD-P of 98. It appears bluegill have had limited recruitment during the past several years.

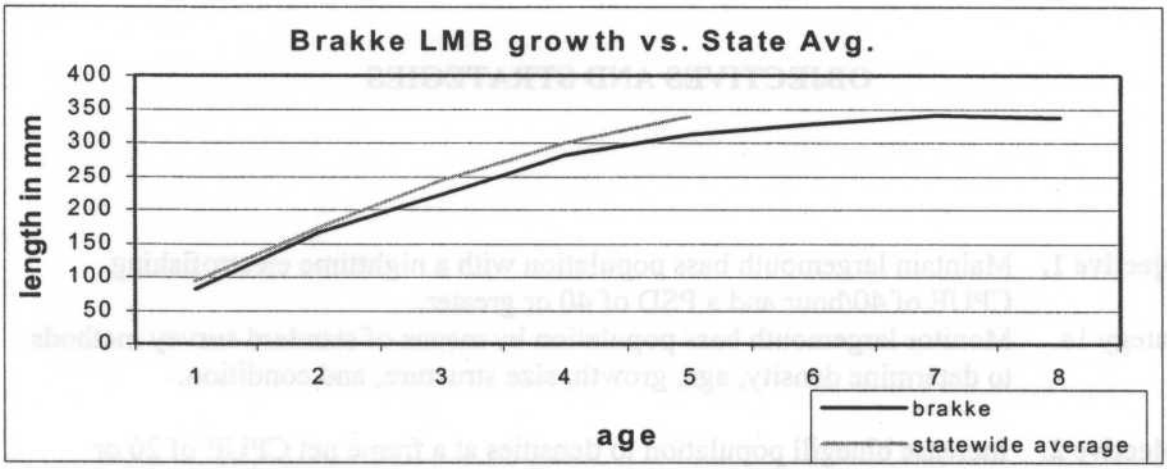
Electrofishing yielded a largemouth bass CPUE of 54.0 bass per hour. Eighty-seven percent of the bass over stock length were over quality length with an RSD-P of 9. Condition for stock length and larger bass was 108.4. Walleye numbers are stable at low densities with a frame net CPUE of 2.5. Large fish with a PSD of 89 and an RSD-P of 39 also dominated the walleye population. Growth was slow and condition was poor with a Wr of 89. Continued walleye stocking in Brakke Lake should be only completed if bluegill or other prey species densities increase. Black crappie, black bullhead, yellow perch and northern pike were also sampled with a CPUE of less than 1.

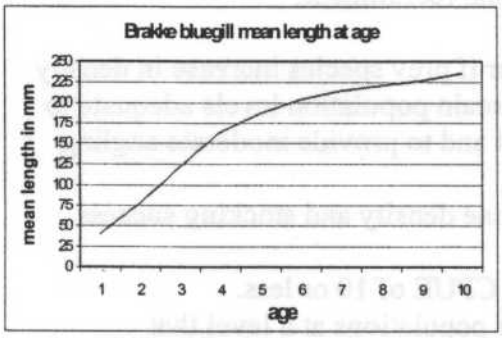
**Total catch of six, 10-minute transects of nighttime electrofishing at Brakke Lake, Lyman County, Oct.22, 2001.**

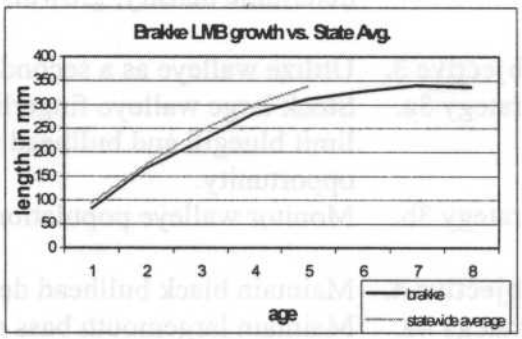
| Spec. | # | % | CPUE fish/hr (80%CI) | PSD (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| LMB | 54 | 77.1 | 54.0(24.2) | 87(8) | 108.4(1.2) |
| WAE | 16 | 22.9 | 16.0(10.4) | 47(23) | 83.0(1.2) |
| Total | 70 | | | | |

**Total catch of eight, 24 hour, 3/4 inch frame nets at Brakke Lake, Lyman County, June 6-8, 2001.**

| Spec. | # | % | CPUE (80%CI) | PSD (90%CI) | Stock Mean Wr (90%CI) |
|---|---|---|---|---|---|
| BLB | 1 | 0.7 | 0.1(0.2) | -- | -- |
| BLC | 5 | 3.7 | 0.6(0.9) | -- | -- |
| BLG | 106 | 78.5 | 13.3(6.4) | 94(4) | 98.2(1.1) |
| NOP | 2 | 1.5 | 0.3(0.4) | -- | -- |
| WAE | 20 | 14.8 | 2.5(1.5) | 89(13) | 84.3(4.2) |
| YEP | 1 | 0.7 | 0.1(0.2) | -- | -- |
| Total | 135 | | | | |




## MANAGEMENT GOAL

**To manage the fishery at Brakke Lake to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 40/hour and a PSD of 40 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Increase bluegill population to densities at a frame net CPUE of 20 or greater with PSD of 40 to 60, a RSD-P above 10 and growth and condition at or above the state average.

Strategy 2a. Maintain bass and walleye populations at densities that prevent bluegill from becoming overpopulated and slowing growth.

Strategy 2b. Monitor bluegill population utilizing standard adult survey methods to determine density, growth, condition and recruitment.

**Objective 3.** Utilize walleye as a secondary predator if prey species increase in density

Strategy 3a. Stock large walleye fingerlings to maintain population levels adequate to limit bluegill and bullhead recruitment and to provide moderate angling opportunity.

Strategy 3b. Monitor walleye population to determine density and stocking success.

**Objective 4.** Maintain black bullhead densities at a CPUE of 10 or less.

Strategy 4a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 5.** Increase yellow perch CPUE at 15/gillnet with growth and condition at or above the state average.

Strategy 5a. Monitor yellow perch population utilizing standard survey methods.

**Objective 6.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Brakke Lake.

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2004 and 2007 utilizing eight, 24 hour, ¾ inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2005 and 2007 if survey results show that total of panfish densities have reached a CPUE of over 50 or the black bullhead population increases.

3. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

Completed by Dan R Jost, Regional Fisheries Manager, Region II

# FIVE YEAR FISHERIES MANAGEMENT PLAN

Water: Fate Dam (45-3) **County:** Lyman

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 164 Acres **Management Class:** WWP
**Maximum Depth:** 19 Feet **Mean Depth:** 9 Feet

**Legal Description:** Sections 25 & 26, Township 106, Range 77

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## INVENTORY

Fate Dam is a 164-acre impoundment two miles east and two and one half miles north of the City of Presho in central Lyman County. Fate Dam was originally known as Nail Creek Dam during the project's construction. After the dam was completed, it became more commonly known as Fate Dam. The artificial lake was created when the Civilian Conservation Corps (CCC) built a dam grade on a tributary near the upper end of Medicine Creek in 1938. The majority of the lake is within 320 acres of land owned by the Dept. of Game, Fish & Parks and managed as a Game Production Area. The upper 1/6th of the lake and the area of the dam grade and spillway are on private land with easements to the State of South Dakota.

The watershed of Fate Dam is approximately 13,760 acres or 20.5 square miles. Topography varies from nearly level to gently rolling with soils mainly of medium to deep clay. Land use in the watershed is estimated at 60% cultivated cropland that consists mainly of small grains, 38% native grasses utilized as pasture or hayland, and 2% farmsteads, treebelts and roads. There are several small dams and dugouts in the watershed of Fate Dam. These dams act as barriers to help inhibit silt from entering into Fate, but they only allow water to reach the lake during significant periods of runoff. The immediate shoreline is native grasses and wooded area on the GPA and cultivated cropland in the upper end of the lake. Extensive siltation is apparent in the upper 1/3 of the lake and has decreased the total lake volume over the past 40 years. Emergent vegetation, mainly bulrush, is common along the entire shoreline with the exception of the dam grade. Submergents are found throughout the lake growing to a depth of 4 feet and becoming very dense during summer months. From the outlet of Fate Dam water flows to Medicine Creek and eventually to Lake Francis Case on the Missouri River. Access is good with a gravel trail from a county road to the access area on the west edge of the lake. The concrete plank boat ramp at Fate Dam is in very poor condition and becomes unusable when the lake is at less than four feet below the spillway elevation. In 1986 it was first noted that considerable erosion had taken place in the area of the spillway. A contract was awarded by the South Dakota Dept. of Game, Fish & Parks and repairs were made to the spillway in 1992.

Fate Dam has been utilized as a recreational fishery since the time of its construction. The only fisheries management records available prior to 1964 are stocking records. In 1940 black bullhead adults and yellow perch adults were stocked and largemouth bass were introduced in 1943. The first recorded fish population survey was conducted in 1964 using six, overnight frame net sets. Eight species of fish were sampled with black crappie and northern pike being the most abundant. Largemouth bass fingerlings were then stocked in 1966 and walleyes introduced in 1969. Fate Dam provided excellent fishing opportunity for panfish and largemouth bass during the 1970s and 80s as it does today. Since 1980 fish stocking has concentrated on predator species, predominately walleye as a secondary predator to help control black bullhead and panfish densities and to provide additional angling opportunity.

**Stocking record for Fate Dam, Lyman County**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1940 | 4,000 | BLB | ADT |
| 1940 | 4,000 | BLB | ADT |
| 1940 | 4,000 | BLB | ADT |
| 1940 | 5,000 | BLB | ADT |
| 1940 | 4,000 | BLB | ADT |
| 1940 | 2,000 | YEP | ADT |
| 1943 | 2,000 | LMB | FGL |
| 1966 | 2,000 | LMB | FGL |
| 1969 | 14,000 | WAE | FGL |
| 1972 | 16,000 | LMB | FGL |
| 1977 | 15,000 | WAE | FGL |
| 1980 | 6,500 | CCF | FGL |
| 1980 | 7,500 | WAE | FGL |
| 1990 | 7,500 | LMB | FGL |
| 1995 | 1,640 | WAE | FGL |
| 1997 | 32,800 | NOP | FGL |
| 1998 | 32,800 | NOP | FGL |
| 1999 | 4,100 | WAE | FGL |
| 2001 | 3,250 | WAE | FGL |

Fate Dam was most recently survey during the summer of 2000 to monitor all fish species. Eight, overnight frame net sets in July and six, ten-minute periods of electrofishing in October were used to sample the adult fish population. Black crappie was the most abundant species sampled in the frame nets as they have been during past surveys. Crappies had a CPUE of 23.6 with a PSD of 78 and an RSD-p of 29. Condition was less than idea with a Wr of 87.5 and growth was below the state average.

Bluegill density was low but quality was good during the 2000 survey. CPUE was 4.8 with a PSD of 86 and an RSD-P of 28. Blue gill condition was better than that of crappies with a Wr of 98.6. Black bullhead numbers have declined dramatically since 1995. A CPUE of 4.8 was recorded in 2000. This compared to 41.0 in 1997. The lower density of bullheads and bluegill would suggest the largemouth bass population is increasing over past levels. During electrofishing, a CPUE of 14 fish per hour was recorded. This was surprisingly lower than what was expected. Northern pike seem to have a consistently low-density population. Surveys conducted in July do not sample pike well due to the warm water temperatures.

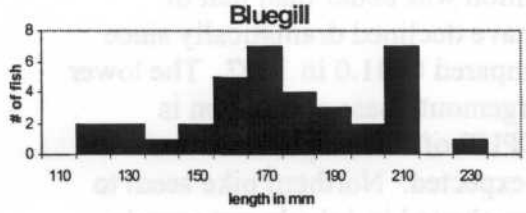
Despite recent supplemental stockings, walleye density is low with only one fish captured in the frame net sets and three others during the fall electrofishing. Without utilizing experimental gill nets, it is difficult to truly evaluate the walleye population.

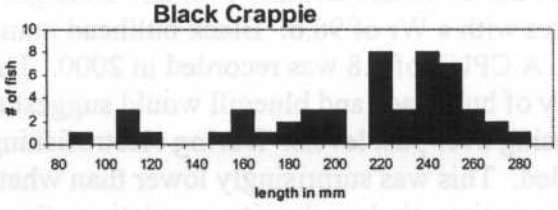
**Total catch of six, 10-minute electrofishing transects at Fate Dam, Lyman County, October 18, 2000.**

| Spec | No. | Low 80% CI | Mean CPUE F/hr | Up 80% CI | Low 90% CI | PSD | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| LMB | 14 | 9.6 | 14.0 | 18.4 | 42 | 70 | 98 | 107.5 | 110.1 | 112.8 |
| WAE | 3 | 1.0 | 3.0 | 5.0 | na | na | na | 83.0 | 91.3 | 99.7 |

**Total catch of eight, 24 hour, 3/4 inch frame nets at Fate Dam, Lyman County, July 24-26, 2000.**

| Spec | No. | Low 80% CI | Mean CPUE | Up 80% CI | Low 90% CI | PSD | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| BLB | 38 | 3.2 | 4.8 | 6.3 | 88 | 95 | 100 | 80.8 | 81.6 | 82.3 |
| BLC | 189 | 16.2 | 23.6 | 31.1 | 67 | 78 | 88 | 85.9 | 87.5 | 89.2 |
| BLG | 36 | 2.4 | 4.8 | 7.1 | 76 | 86 | 96 | 97.9 | 98.6 | 99.2 |
| NOP | 12 | 1.0 | 1.5 | 2.0 | 0 | 8 | 23 | 74.8 | 76.9 | 79.0 |
| PUS | 5 | 0.1 | 0.6 | 1.2 | na | na | na | 100.1 | 103.4 | 106.7 |
| YEP | 9 | 0.3 | 1.1 | 1.9 | 23 | 56 | 88 | 86.0 | 96.3 | 106.7 |
| WAE | 1 | 0.0 | 0.1 | 0.3 | na | na | na | na | na | na |



## MANAGEMENT GOAL

**To manage the fishery at Fate Dam to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population densities with nighttime electrofishing CPUE of 30\hour and a PSD of 60 or greater.

Strategy 1 a. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Utilize walleye as a secondary predator to limit panfish recruitment and to provide increased angling opportunity.

Strategy 2a. Stock large walleye fingerlings biannually to supplement population.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Maintain black crappie PSD values between 50 and 80 with growth and condition factors at or above the state average.

Strategy 3a. Maintain largemouth bass and walleye populations at densities high enough to limit panfish recruitment and prevent overpopulation and slow growth rates.

**Objective 4.** Maintain black bullhead densities with a CPUE of 30 or less.

Strategy 4a. Monitor black bullhead population using standard fish population survey methods.

**Objective 5.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Fate Dam.

## 5 YEAR OPERATIONAL PLAN

1. Conduct a standard fisheries population survey in 2003 and 2006 utilizing eight, 24 hour, ¾ inch frame-net sets, two, 150 foot experimental gill net sets, and at least 1 hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25 per acre in 2003, 2005 and 2007.

3. Physically remove all black bullheads captured at the time of the 2003 and 2006 lake surveys.

3. The local Conservation Officer and other GF&P staff should solicit input from private and public sources and provide information to the Regional Fisheries Manager on a timely basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008.

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Completed by Dan R Jost, Regional Fisheries Manager, Region 11

# FIVE YEAR FISHERIES MANAGEMENT PLAN

Water: Potts Dam (54-3)

**County:** Potter

**Present Plan:** F-21-R-35
**Previous Plan:** F-21-R-27

**Date:** January 2003 - December 2007
**Date:** January 1994 - December 1998

**Surface Area:** 58 Acres
**Maximum Depth:** 15 Feet

**Management Class:** WSP
**Mean Depth:** 6.3 Feet

**Legal Description:** Sections 20 & 21, Township 117, Range 74

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## INVENTORY

Potts Dam is a 58-acre impoundment eight miles east and six miles south of Gettysburg in southeast Potter County. Potts Dam was named after Grant Potts, one of the early residents of Potter County. The artificial impoundment was created in 1938 when the Works Progress Administration (WPA) constructed an earthen dam on the upper end of Okobojo Creek. To allow for the construction of the dam and flooding that would create the lake, three public use easements were granted to the State of South Dakota for the lake and a 66-foot strip of land above the high water contour. These easements are recorded with the Potter County Register of Deeds office, Misc. Book 9, pages 469 & 470. Currently, approximately 80% of Potts Dam is owned by the South Dakota Dept. of Game, Fish and Parks and lies within a 350 Game Production Area.

The watershed of Potts Dam is relatively small at approximately 10 square miles or 6,400 acres. Topography varies from near level to gently sloping. Soils are of the Agar Association that are deep silty soils, and from the Oahe Association that consist of loamy soils with gravel and sand subsoil. The immediate shoreline of Potts Dam is native grasses within the GPA. The remainder of the watershed in 90% cultivated agricultural land, and 10% farmsteads, roads, pasture or hayland, and treebelts. There are records of twelve dams and six dugouts located in the watershed. Moderate siltation has occurred in the upper 1/3 of the lake decreasing water volume and supplying nutrients that promote vegetation growth. Emergent vegetation, predominantly bulrush, surrounds the majority of Potts Dam's shoreline. Submergents are found throughout the lake and grow to a depth of 5 feet. From the outlet of Potts Dam water flows down Okobojo Creek to Lake Oahe on the Missouri River. Access to Potts Dam is good from a county road to the south of the lake with an access trail leading to the majority of the east and south shoreline. An access area with vault toilet and concrete plank boat ramp is located on the south side of the lake.

Potts Dam has provided a recreational fishery since its construction. The first recorded fisheries activities were stockings of black crappie, black bullhead, bluegill and largemouth bass prior to 1942. During the early years, reports indicate that bullheads and crappie supported the fishery and provided excellent angling opportunity. In the 1950s, northern pike were introduced into Potts Dam. The first recorded lake survey was conducted in 1959 utilizing two frame net sets. Bluegill and black crappies were the dominant species sampled with northern pike, channel catfish and largemouth bass also recorded. Potts Dam suffered fish loss from winterkill in 1959 and again in 1961. Test netting in 1961 revealed only a large number of bullheads and a few perch remained in the lake. Following the winterkill largemouth bass and northern pike were restocked to try and reduce the number of black bullheads. Bass and pike were stocked on numerous occasions during the 1960s and early 1970s with fair success. Fishing opportunity varied from excellent to fair depending upon the year, with bullhead numbers decreasing and gamefish species having consistent recruitment and good growth and condition. In 1976 Potts dam again suffered from a partial winterkill. The lake was restocked with largemouth bass and bluegill and has provided excellent fishing opportunity for these two species from the late seventies to present.

**Stocking record for Potts Dam, Potter County**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1937 | 350 | BLC | ADT |
| 1939 | 2,000 | BLB | ADT |
| 1940 | 300 | BLG | ADT |
| 1942 | 1,000 | LMB | FGL |
| 1954 | 1,000 | CCF | ADT |
| 1955 | 72 | NOP | ADT |
| 1962 | 200 | BLG | ADT |
| 1962 | 700 | LMB | FGL |
| 1963 | 300 | LMB | ADT |
| 1965 | 50,000 | NOP | FRY |
| 1966 | 70,000 | NOP | FRY |
| 1967 | 5,000 | LMB | FGL |
| 1970 | 2,500 | LMB | FGL |
| 1972 | 6,000 | LMB | FGL |
| 1974 | 300 | BLG | ADT |
| 1976 | 5,000 | LMB | FGL |
| 1978 | 330 | BLG | ADT |
| 1978 | 4,800 | LMB | FGL |
| 1979 | 3,000 | CCF | FGL |
| 1979 | 2,400 | LMB | FGL |
| 1979 | 3,000 | YEP | FGL |
| 1986 | 3,000 | LMB | FGL |

The most recent fish population survey was conducted at Potts Dam during the summer of 2000. Eight, overnight frame net sets in July and four, ten-minute periods of electrofishing in September were used to sample the fish population. No experimental gill net sets were completed during this survey.

Bluegill was the most abundant species sampled in 2000, as they have been during the past several surveys. Bluegill yielded a frame net CPUE of 34.3 with a PSD of 51 and an RSD-P of 2. Condition was excellent with a Wr of 112. Growth was comparable to state and regional averages. The second most numerous panfish sampled was black crappie. A CPUE of 16.6 was recorded with a PSD of 0. This is an increase in density but and a dramatic decrease in size structure from the survey conducted in 1997. All of the crappie sampled in 2000 were either one or two years old.

Yellow perch increased in numbers and size from the 1997 population. In 2000 a CPUE of 13.5 was recorded from the frame nets with a PSD of 20. Condition is poor with a Wr of 83 and growth is well below the state and regional averages. Yellow perch have difficulty competing with bluegill in small impoundments.

The primary predator in Potts Dam continues to be largemouth bass. Potts Dam has had a reputation as a good bass fishery and the 2000 survey indicates that it will continue in the future. Nighttime electrofishing yielded a CPUE of 64.5 fish per hour with a PSD of 56 and an RSD-P of 9. Fish condition was good with a Wr of 98. The bass sampled indicated a balanced population with a number of year classes represented. It appears that largemouth bass reproduction and recruitment into the adult population is consistently good at Potts Dam.

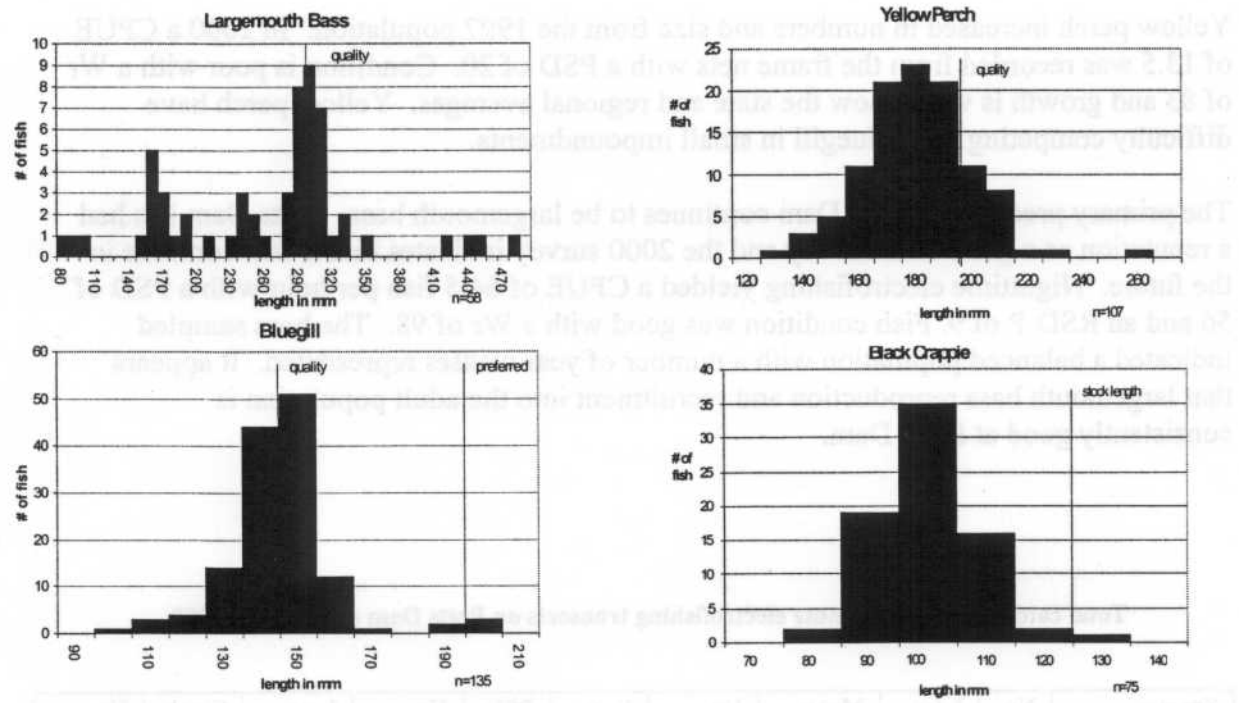
**Total catch of four, 10-minute electrofishing transects on Potts Dam on Sept. 28, 2000.**

| Species | No | Low 80% CI | Mean CPUE | Up 80% CI | Low 90% CI | PSD | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| **LMB(stock)** | 43 | 36.6 | 64.5 | 92.4 | 43 | 56 | 69 | 96.7 | 97.9 | 99.1 |
| **LMB(substk)** | 21.7 | 12.3 | 22.5 | 32.6 | | | | 99.2 | 101.0 | 102.6 |

**Total catch of eight, 24 hour, 3/4-inch frame nets at Potts Dam, Potter County, July 17, 2000.**

| Species | No | Low 80% CI | Mean CPUE | Up 80% CI | Low 90% CI | PSD | Up 90% CI | Low 90% CI | Stock Mean Wr | Up 90% CI |
|---|---|---|---|---|---|---|---|---|---|---|
| **BLB** | 19 | 1.5 | 2.4 | 3.3 | 100 | 100 | 100 | 95.8 | 98.0 | 100.2 |
| **BLC** | 134 | 7.5 | 16.6 | 25.7 | NA | 0 | NA | NA | 112.7 | NA |
| **BLG** | 274 | 23.1 | 34.3 | 45.4 | 46 | 51 | 56 | 111.1 | 112.0 | 112.9 |
| **LMB** | 14 | 1.2 | 1.8 | 2.3 | 0 | 33 | 76 | 98.5 | 100.9 | 103.4 |
| **YEP** | 108 | 3.4 | 13.5 | 23.6 | 14 | 20 | 27 | 82.8 | 83.3 | 83.9 |

## Length Frequency for Selected Species of Fish at Potts Dam, 2000

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**MANAGEMENT GOAL**

**To manage the fishery at Potts Dam to maximize angler opportunity.**

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## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population densities with nighttime electrofishing CPUE of 50\hour and a PSD of 40 or greater.

Strategy Ia. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective 2.** Maintain panfish PSD values between 40 and 60 with growth and condition factors at or above the state average.

Strategy 2a. Maintain largemouth bass population at a density high enough to limit panfish recruitment and prevent overpopulation and slow growth rates.

**Objective 3.** Maintain black bullhead densities with a CPUE of 10 or less.

Strategy 3a. Monitor black bullhead population using standard fish population survey methods.

**Objective 4.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Potts Dam.

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## 5 YEAR OPERATIONAL PLAN

1. Conduct a standard fisheries population survey in 2003 and 2006 utilizing eight, 24 hour, ¾ inch frame net sets, two, 150 foot experimental gill net sets, and at least 1 hour of nighttime electrofishing to monitor all fish species.

2. The local Conservation Officer and other GF&P staff should solicit input from private and public sources and provide information to the Regional Fisheries Manager on a timely basis.

3. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2005.

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**Completed** by **Dan R Jost, Regional Fisheries Manager, Region** II

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Roosevelt Lake (60-1) **County:** Tripp

**Present Plan:** F-21-R-35 **Date:** January 2003 - December 2007
**Previous Plan:** F-21-R-30 **Date:** January 1998 - December 2002

**Surface Area:** 85 Acres **Management Class:** WWP
**Maximum Depth:** 18 Feet **Mean Depth:** 6 Feet

**Legal Description:** Section 20, Township 97 North, Range 74 West

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## INVENTORY

Roosevelt Lake is an 85-acre impoundment five miles east and two miles south of the town of Colome in eastern Tripp County. The lake was named for President Franklin D. Roosevelt and was constructed by the Works Progress Administration (WPA) in 1936. The artificial lake was created by the construction of an earthen dam on a tributary of Ponca Creek. The lake receives water from two drainages, one from the west and the other from the south of the dam's location. To allow for public use of the newly formed lake, an easement was granted for the flooded area and a strip of land 12 feet above the high water contour, as well as a 66-foot right-of-way from the dam to the nearest section line. These easements are recorded at the Tripp County Register of Deeds office, Misc. Book 12, page 624. The dam at Roosevelt Lake failed in 1947 and was rebuilt in 1948 by the South Dakota Dept. of Game, Fish and Parks. On November 28, 1967, the Dept. of Game, Fish & Parks purchased the SE1/4, S20, T97N, R74W. This purchase is recorded in the County Book of Patents, Volume 2. The land purchased is comprised of 70 acres of native grasses and treebelts, 40 acres of marshland, and 50 acres of water. It is managed as a Lake Access Area and Game Production Area. The remainder of the lake is privately owned.

The watershed for Roosevelt Lake is relatively small at five square miles or approximately 3,200 acres. The main tributary, with its origin five miles to the south, has intermittent flow and is spring fed. The secondary tributary originates one mile to the west and has intermittent flow, mainly from precipitation run off. The immediate shoreline of Roosevelt Lake has nearly level to sloping topography. The soil is deep, well drained, silty clay loam. The watershed is made up of moderately deep sandy soils of the Holt-Anselmo Association with nearly level to gently undulating upland topography. Land use is approximately 80% native grasses utilized as pasture or hayland, and 20% cultivated agricultural land. There are no dams or dugouts recorded in the

watershed. Moderate siltation is apparent in the upper end of both tributaries, but is more common in the west arm of the lake. Emergent vegetation is found around the majority of the shoreline. Submergent vegetation is found throughout the lake and grows to a depth of 4 feet. From the outlet of Roosevelt Lake, water flows to Ponca Creek and eventually to the Missouri River. Access is fair from a gravel township road on a dirt trail to the access area on the northeast corner of the lake. The concrete boat ramp and vault toilet are the only user facilities at Roosevelt.

Roosevelt Lake was originally constructed in 1936. Very little information is available concerning the lake prior to 1947 when the dam grade failed and was rebuilt by the South Dakota Dept. of Game, Fish and Parks. Following the construction of the new dam grade and the lake filling, Roosevelt was stocked with bluegill, largemouth bass, and walleye in 1949. Additional stockings of bluegill and largemouth were completed in 1951 and walleyes were again stocked in 1952. By 1953 common carp had entered the lake and were at problem levels. Predator fish species including walleyes, bass, and channel catfish were stocked at higher numbers to try to control the carp population. Despite the increased stocking, gamefish species suffered and carp continued to be present at high densities. In 1955 Roosevelt Lake was chemically eradicated. Restocking efforts included largemouth bass and walleye, but carp were found to be present in the lake after the rehabilitation and the fishery did not develop. The lake was again chemically eradicated in 1959 and it is recorded that this rehabilitation was successful with all fish life in the lake and watershed being eliminated. Bluegill, largemouth bass, yellow perch and channel catfish were reintroduced into the lake in 1960 and 1961. Roosevelt Lake developed into a self-sustaining fishery with good reproduction and recruitment of gamefish species. Throughout the 1960s and 1970s the lake provided good fishing opportunity for bluegill, bass, and perch. No other stockings were completed until 1982. Walleye were again stocked in 1982 and channel catfish in 1983. Smallmouth bass were stocked for several years in the late 1980s, but the stockings proved to be unsuccessful with a lack of recruitment into the adult population. Since 1991 Roosevelt Lake has been scheduled for biannual walleye stocking to provide increased angling opportunity and to provide a secondary predator to promote panfish growth

**Stocking record for Roosevelt Lake, Tripp County, 1982 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1982 | 3,650 | WAE | FGL |
| 1983 | 7,300 | CCF | FGL |
| 1987 | 3,650 | SMB | FGL |
| 1988 | 7,200 | SMB | FGL |
| 1989 | 3,650 | SMB | FGL |
| 1990 | 3,650 | SMB | FGL |
| 1991 | 3,650 | SMB | FGL |
| 1991 | 7,300 | WAE | FGL |
| 1992 | 3,650 | SMB | FGL |
| 1993 | 1,200 | WAE | FGL |
| 1998 | 1,376 | WAE | FGL |

Roosevelt Lake was most recently surveyed in 2002. One, 150-foot experimental gill net set and ten, ¾-inch frame net sets in June and four, ten-minute periods of nighttime electrofishing in September were used to sample the adult fish population.

**Total catch from four, ten-minute runs of fall nighttime electrofishing on Roosevelt, Tripp County, September 9, 2002.**

| Species | # | % | CPUE | 80% C.I. | CPUE* | PSD | RSD-P | Mean |
|---|---|---|---|---|---|---|---|---|
| Largemouth Bass | 75 | 97.4 | 112.5 | t 46.3 | 13.0 | 78 | 78 | 110 |
| Walleye | 2 | 2.6 | 3.0 | f 2.8 | -- | 100 | 0 | 91 |

* One year mean (1986)

**Total catch of one, 150 ft. experimental gill nets at Roosevelt, Tripp County, June 10-12, 2002.**

| Species | # | % | CPUE | CPMean CPUE* | PSD | RSD-P | Mean |
|---|---|---|---|---|---|---|---|
| Yellow Perch | 80 | 67.8 | 80.0 | 27.3 | 35 | 3 | 100 |
| Walleye | 8 | 6.8 | 8.0 | -- | 100 | 0 | 90 |
| Black Crappie | 7 | 5.9 | 7.0 | -- | 100 | 29 | 93 |
| Bluegill | 7 | 5.9 | 7.0 | -- | 86 | 43 | 100 |
| Largemouth Bass | 7 | 5.9 | 7.0 | 0.3 | 86 | 0 | 119 |
| Northern Pike | 5 | 4.2 | 5.0 | 1.7 | 100 | 60 | 93 |
| Black Bullhead | 4 | 3.4 | 4.0 | 42.3 | 100 | 100 | 85 |

* Three year mean (1976, 1981, and 1984)

**Total catch of ten, overnight'/4-inch frame nets at Roosevelt, Tripp County, June 10-12, 2002.**

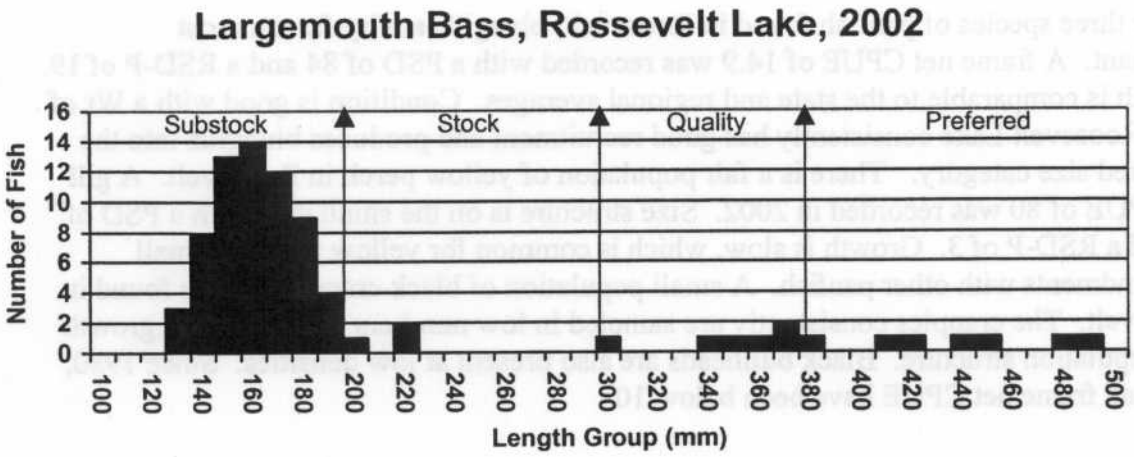
| Species | # | % | CPUE | 80% C.I. | CPUE* | PSD | RSD-P | Mean |
|---|---|---|---|---|---|---|---|---|
| Bluegill | 149 | 60.3 | 14.9 | ± 6.7 | 13.4 | 84 | 19 | 108 |
| Black Bullhead | 66 | 26.7 | 6.6 | ± 1.3 | 26.6 | 98 | 97 | 88 |
| Yellow Perch | 12 | 4.9 | 1.2 | ± 0.8 | 9.2 | 75 | 50 | 93 |
| Black Crappie | 11 | 4.5 | 1.1 | ± 0.5 | 0.2 | 73 | 9 | 95 |
| Northern Pike | 8 | 3.2 | 0.8 | ± 0.6 | 1.2 | 57 | 0 | 85 |
| Green Sunfish | 1 | 0.4 | 0.1 | ± 0.1 | 0.1 | -- | -- | 137 |
| * Eleven year **mean** (1970, 1976, 1979, 1981, 1984, 1986, 1990, 1992-93, 1996, and 1999) | | | | | | | | |

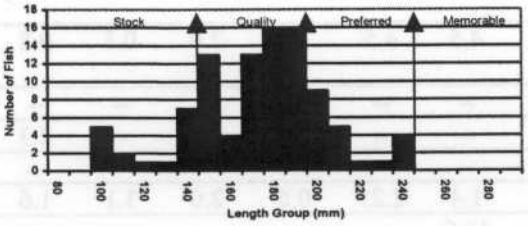
The largemouth bass population continues to be in good shape. A CPUE of 112.5 fish per hour of electrofishing was recorded. Many of these fish were below stock length, but PSD and RSD-P were both 78. Reproduction and recruitment is very consistent for bass in Roosevelt. Condition was excellent with a Wr of 110. Growth was slightly lower than the state and regional averages. The use of walleye as a secondary predator in Roosevelt Lake is proving to be only marginally successful. Despite recent stockings, a low density, slow growing population of walleye is currently found at the lake. A gill net CPUE of 8 was recorded with a PSD of 100 and an RSD-P of 0. There is no evidence of natural reproduction.

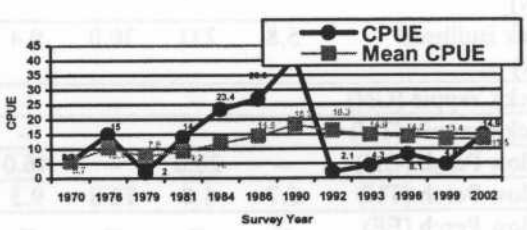
Of the three species of panfish found in Roosevelt, bluegills are by far the most dominant. A frame net CPUE of 14.9 was recorded with a PSD of 84 and a RSD-P of 19. Growth is comparable to the state and regional averages. Condition is good with a Wr of 108. Roosevelt Lake consistently has good recruitment and produces bluegills into the preferred size category. There is a fair population of yellow perch in Roosevelt. A gill net CPUE of 80 was recorded in 2002. Size structure is on the small side with a PSD of 35 and a RSD-P of 3. Growth is slow, which is common for yellow perch in small impoundments with other panfish. A small population of black crappies is also found in Roosevelt. The crappies consistently are sampled in low numbers but with good growth and population structure. Black bullheads are also present at low densities. Since 1980, bullhead frame net CPUE have been below 10.

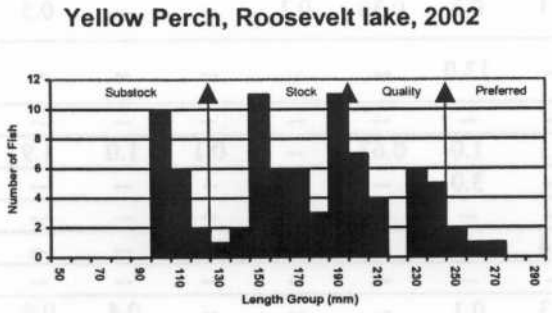
**Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Roosevelt since the last chemical rehabilitation in 1959.**

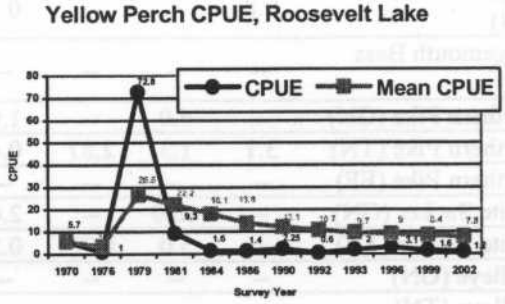
| Species | 1970 | 1976 | 1979 | 1981 | 1984 | 1986 | 1990 | 1992 | 1993 | 1996 | 1999 | 2002 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Black Bullhead (GN) | -- | 100 | -- | 27.0 | -- | -- | -- | -- | -- | -- | -- | 4.0 |
| Black Bullhead (TN) | 5.8 | 231 | 30.0 | 9.4 | 2.9 | 4.5 | 4.5 | 1.8 | 2.0 | 0.3 | 0.8 | 6.6 |
| Black Crappie (GN) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 7.0 |
| Black Crappie (TN) | -- | -- | -- | -- | -- | -- | -- | 0.1 | -- | -- | 2.3 | 1.1 |
| Yellow Perch (GN) | -- | 28.0 | -- | 46.0 | 8.0 | -- | -- | -- | -- | -- | -- | 80.0 |
| Yellow Perch (TN) | 5.7 | 1.0 | 72.8 | 9.3 | 1.6 | 1.4 | 2.25 | 0.6 | 2.0 | 3.1 | 1.6 | 1.2 |
| Yellow Perch (EF) | -- | -- | -- | -- | -- | 10.0 | -- | -- | -- | -- | -- | -- |
| Largemouth Bass (GN) | -- | -- | -- | 1.0 | -- | -- | -- | -- | -- | -- | -- | 7.0 |
| Largemouth Bass (TN) | 0.8 | -- | -- | 0.3 | 0.1 | 0.3 | 0.38 | 0.1 | -- | -- | 0.3 | -- |
| Largemouth Bass (EF) | -- | -- | -- | -- | -- | 13.0 | -- | -- | -- | -- | -- | 112.5 |
| Northern Pike (GN) | -- | 4.0 | -- | 1.0 | -- | -- | -- | -- | -- | -- | -- | 5.0 |
| Northern Pike (TN) | 3.1 | 1.3 | 2.87 | 0.4 | 1.1 | 1.0 | 0.63 | -- | 0.1 | 1.0 | 1.9 | 0.8 |
| Northern Pike (EF) | -- | -- | -- | -- | -- | 3.0 | -- | -- | -- | -- | -- | -- |
| White Sucker (GN) | -- | 10.0 | -- | 2.0 | -- | -- | -- | -- | -- | -- | -- | - |
| White Sucker (TN) | -- | 3.0 | 0.75 | 0.5 | 0.4 | -- | -- | -- | -- | -- | -- | -- |
| Walleye (GN) | -- | -- | -- | -- | -- | -- | -- | -- | | | | 8.0 |
| Walleye (TN) | -- | -- | -- | -- | 0.3 | 0.1 | -- | -- | -- | 0.4 | 0.4 | -- |
| Bluegill (GN) | -- | -- | -- | -- | -- | -- | | | | | | 7.0 |
| Bluegill (TN) | 5.7 | 15.0 | 2.0 | 14.0 | 23.4 | 26.8 | 41.0 | 2.1 | 4.3 | 8.1 | 4.8 | 14.9 |
| Bluegill (EF) | -- | -- | -- | -- | -- | 9.0 | -- | -- | -- | -- | -- | -- |
| Green Sunfish (GN) | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | |
| Green Sunfish (TN) | -- | -- | -- | -- | 0.4 | -- | 0.13 | 0.5 | -- | -- | 0.1 | 0.1 |
| Green Sunfish (EF) | -- | -- | -- | -- | -- | 1.0 | -- | -- | -- | -- | -- | -- |
| Hybrid Sunfish (GN) | -- | -- | -- | -- | -- | -- | | | | | | |
| Hybrid Sunfish (TN) | -- | -- | -- | -- | -- | 0.8 | -- | -- | -- | -- | -- | -- |
| Golden Shiner (GN) | -- | -- | -- | -- | -- | -- | 0.25 | -- | 0.4 | -- | -- | -- |
| Golden Shiner (TN) | - | -- | -- | | | -- | | -- | -- | | | |




## MANAGEMENT GOAL

**To manage the fishery at Roosevelt Lake to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 50/hour and a PSD of 40 or greater.

Strategy Ia. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective** 2. Utilize walleye as a secondary predator to limit panfish recruitment and increase angling opportunity.

Strategy 2a. Stock large walleye fingerlings to maintain population levels adequate to limit bluegill and black crappie recruitment and to provide moderate angling opportunity.

Strategy 2b. Monitor walleye population to determine density and stocking success.

**Objective 3.** Maintain black bullhead densities to a CPUE of 10 or less.

Strategy 3a. Maintain largemouth bass and walleye populations at a level that effectively limits bullhead recruitment.

**Objective 4.** Maintain yellow perch CPUE at 10/gillnet with growth and condition at or above the state average.

Strategy 4a. Monitor yellow perch population utilizing standard survey methods.

**Objective 5.** Maintain bluegill and black crappie population at current densities with growth and condition at or above the state average.

Strategy 5a. Maintain bass and walleye populations at densities that prevent panfish from becoming overpopulated slowing growth.

Strategy 5b. Monitor bluegill and black crappie populations utilizing standard adult survey methods to determine density, growth and condition.

**Objective 6.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Roosevelt Lake.

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2005 utilizing eight, 24 hour, 3/a inch frame net sets, two, 150 foot, experimental gillnet sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. Stock large walleye fingerlings at a rate of 25/acre in 2006 if survey results indicate good recruitment and growth of past stockings.

3. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information to the Regional Fisheries Manager on a regular basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

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Completed by Dan R Jost, Regional Fisheries Manager, Region II

# FIVE YEAR FISHERIES MANAGEMENT PLAN

**Water:** Lake Molstad (63-3)

**County:** Walworth

**Present Plan:** F-21-R-35
**Previous Plan:** F- 2- R- 30

**Date:** January 2003 - December 2007
**Date:** January 1998 - December 2002

**Surface Area:** 100 Acres
**Maximum Depth:** 19.5 Feet

**Management Class:** WWP
**Mean Depth:** 8 Feet

**Legal Description:** Sections 8 & 17, Township 124 North, Range 78 West

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## INVENTORY

Lake Molstad is a 100-acre artificial impoundment six miles east and one and one-half mile north of the City of Mobridge in northwest Walworth County. The lake was created in 1938 with the construction of an earthen dam on Blue Blanket Creek by the Works Progress Administration (WPA). To allow for the construction of the dam and flooding of approximately 100 acres of land, public use easements were granted to the State of South Dakota for the lake, a 12-foot strip of land above the high water contour, and a 66-foot right-of-way. Easements are recorded in the Walworth County register of Deeds office, Walworth County courthouse, Selby, South Dakota.

The watershed for Lake Molstad in approximately 13,600 acres or 21.2 square miles. The topography varies form nearly level to gently sloping with soil types of sandy loam and light clay. Sixty percent of the land in the watershed is cultivated agricultural land utilized for row crops and small grains. Of the remainder of the watershed, 35% is native grasses used as pasture, hayland, and land in the conservation reserve program. The other 5% is residences, farmsteads, treebelts and roads. There are records of 37 ponds and dugouts in the watershed, of these two are capable of supporting fish population's in all but the most adverse conditions. Moderate siltation is apparent in the upper end of Lake Molstad. Siltation has reduced the total water volume of the lake by approximately 10% over the past 60 years. Emergent vegetation is found along 90% of Lake Molstad's shoreline. Emergents consist primarily of cattail and bulrush. Submergent vegetation is found throughout about 65% of the lake. Vegetation gets very heavy during summer months impeding both boat and shore fishing opportunity. From the spillway of Lake Molstad water flows down Blue Blanket Creek approximately five miles to Lake Oahe on the Missouri River. Access to Molstad is good via gravel trails from a county road. A concrete boat ramp and small picnic area are available to users of Lake Molstad.

Major erosion and deterioration of the spillway at Lake Molstad had become a serious problem by the end of the 1990's. Water seepage from the spillway had created considerable erosion and had become severe enough that the lake was unable to hold its volume. In 1999 the spillway was rebuilt and is now in good condition.

Lake Molstad has provided a fishery from the time of its construction. The first recorded stocking was of black bullheads in 1940. Largemouth bass were introduced in 1943 along with yellow perch. Bass were stocked on several other occasions during the 1940s. Bullheads, bass and bluegill were stocked from 1950 to 1955. From early records, Lake Molstad provided excellent fishing opportunity for largemouth bass, bluegill and black bullhead until the late 1950s when small black crappie, common carp and white suckers dominated the population. By 1964 the fish population in Molstad had deteriorated to the point it was unacceptable to anglers. Molstad was chemically eradicated during that summer, however records indicate rough species, including black bullheads, remained in the lake. Following eradication, Lake Molstad was managed as a cold water fishery with stockings of rainbow and brown trout. Trout stockings were only marginally successful, as over-summer trout survival was limited at best.

Without an effective predator in Lake Molstad, bullheads soon became very numerous and size structure was small with very slow growth due to stunting. Molstad was again eradicated in 1971. This time, post eradication surveys showed no evidence of surviving fish, including black bullheads. Trout management was continued until 1976 when it was decided to manage Lake Molstad as a more suitable, warm water fishery. For the following 20 years Molstad was managed primarily as a largemouth bass / bluegill fishery. Fishing success varied from good to excellent until the late 1980s when black bullhead once again became numerous having a negative effect on all game fish species. Low water condition and an above average amount of snow cover during the winter of 1991-92 led to a substantial winterkill. Test netting the following spring indicated that only a large population of black bullhead remained. Lake Molstad was chemically eradicated once again in the fall of 1992 to eliminate the surviving bullheads and an aggressive stocking plan was put into place. Since the 1992 eradication, Molstad has been managed for largemouth bass and yellow perch. The bass population has maintained the bullheads at low density. With the high-density population of largemouth bass, yellow perch recruitment has been limited. Bluegills were restocked in 2001 to provide a food source for the bass and allow increased panfish opportunity.

**Stocking record for lake Molstad, Walworth County 1988 - 2003**

| YEAR | NUMBER | SPECIES | SIZE |
|---|---|---|---|
| 1988 | 1,100 | LMB | FGL |
| 1992 | 1,400 | YEP | FGL |
| 1993 | 385 | LMB | ADT |
| 1993 | 10,340 | LMB | FGL |
| 1994 | 10,000 | LMB | FGL |
| 1994 | 300 | LMB | ADT |
| 1995 | 200 | TEP | ADT |
| 1995 | 2,500 | YEP | FGL |
| 2001 | 325 | BLG | ADT |
| 1999 | 2,100 | WAE | FGL |

Lake Molstad was most recently surveyed in 2002 to monitor all fish species. Ten, overnight frame net sets in July and six, ten-minute periods of nighttime electrofishing in October were used to sample the fish population. No experimental gill nets were set in Lake Molstad during the 2002 survey.

Although decreasing over the past few years, Lake Molstad's largemouth bass population continues to be in excellent shape. An electrofishing CPUE of 49 was recorded with a PSD of 84 and an RSD-P of 84. Condition was good with a Wr of 106 and growth was slightly above the state average. Bluegills were reintroduced in Molstad in 2001. During the 2002 survey, twenty-eight of the originally stocked adults were sampled along with several young-of-the-year and yearling fish. The adult fish had grown significantly since the time of stocking one-year prior and the condition was excellent with a Wr of 121.

Twenty-seven black bullheads were samples for a CPUE of 2.7. All bullheads were large adults indicating limited recruitment. Other species captured in 2002 were yellow perch and northern pike.

**Total catch of ten, overnight'/.-inch frame nets at Lake Molstad, Walworth County, July 1-3, 2002.**

| Species | # | % | CPUE | 80% C.I. | Mean CPUE | PSD | RSD-P | Mean Wr |
|---|---|---|---|---|---|---|---|---|
| Black Bullhead | 27 | 35.5 | 2.7 | ± 0.5 | 13.5 | 100 | 100 | 95 |
| Bluegill** | 28 | 36.8 | 2.8 | ± 1.6 | 2.8 | 93 | 79 | 121 |
| Yellow Perch | 5 | 6.6 | 0.5 | ± 0.4 | 1.4 | 100 | 60 | 104 |
| Northern Pike | 15 | 19.7 | 1.5 | ± 0.3 | 0.03 | 47 | 7 | 83 |
| Largemouth Bass | 1 | 1.3 | 0.1 | ± 0.1 | 0.3 | -- | -- | 91 |

* Four years (1995, 1997, 2000, renovated in 1992)
** Bluegill adults were stocked for the first time in 2001

**Total catch from six, ten-minute runs of fall nighttime electrofishing on Lake Molstad, Walworth County, October 2, 2002.**

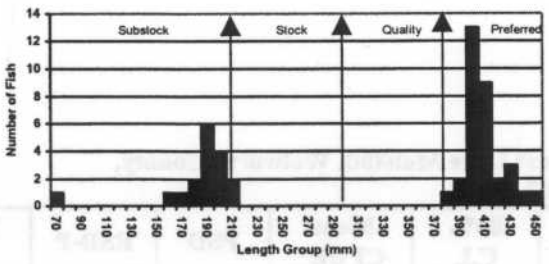
| Species | # | % | CPUE | 80% C.I. | Mean CPUE | PSD | RSD-P | Mean Wr |
|---|---|---|---|---|---|---|---|---|
| Largemouth Bass | 49 | 100 | 49.0 | ± 11.5 | 36.5 | 84 | 84 | 106 |

* Three years (1995, 2000, renovated in 1992)

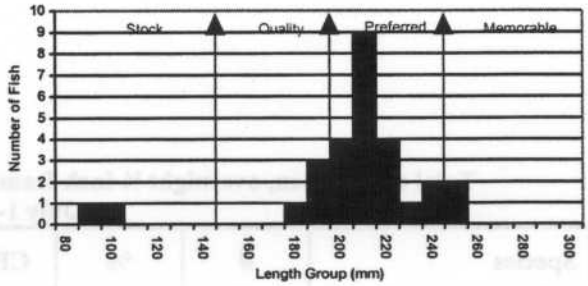
**Gill net (GN), trap net (TN), and electrofishing (EF) CPUE for all fish species sampled in Lake Molstad since the renovation in 1992.**

| Species | 1995 | 1997 | 2000 | 2002 |
|---|---|---|---|---|
| Black Bullhead (GN) | -- | 35.0 | 5.5 | -- |
| Black Bullhead (TN) | 87.3 | 3.6 | 9.8 | 2.7 |
| Yellow Perch (GN) | -- | 20.0 | 23.5 | -- |
| Yellow Perch (TN) | 0.5 | 1.4 | 2.3 | 0.5 |
| Largemouth Bass (EF) | 20.6 | -- | 88.8 | 49.0 |
| Largemouth Bass (GN) | -- | -- | 3.5 | -- |
| Largemouth Bass (TN) | 0.4 | 0.5 | 0.1 | 0.1 |
| Northern Pike (GN) | -- | -- | 2.0 | -- |
| Northern Pike (TN) | -- | -- | 0.1 | 1.5 |
| Bluegill (GN) | -- | -- | -- | -- |
| Bluegill (TN) | -- | -- | -- | 2.8 |
| Smallmouth Bass (EF) | 2.6 | -- | -- | -- |

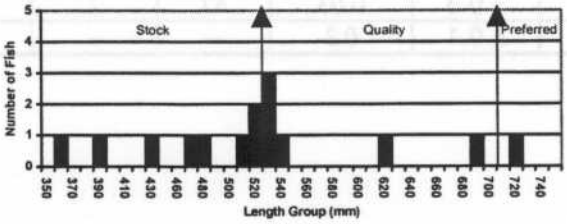
**Largemouth Bass, Lake Molstad, 2002**



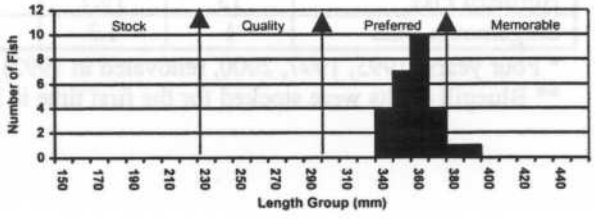

**Bluegill, Lake Molstad, 2002**




**Northern Pike, Lake Molstad, 2002**




**Black Bullhead, Lake Molstad, 202**




## MANAGEMENT GOAL

**To manage the fishery at Lake Molstad to maximize angler opportunity.**

## OBJECTIVES AND STRATEGIES

**Objective 1.** Maintain largemouth bass population with a nighttime electrofishing CPUE of 40/hour and a PSD of 40 or greater.

Strategy Ia. Monitor largemouth bass population by means of standard survey methods to determine density, age, growth, size structure, and condition.

**Objective 2.** Maintain black bullhead densities to a CPUE of 10 or less.

Strategy 2a. Maintain largemouth bass population at a level that effectively limits bullhead recruitment.

**Objective 3.** Increase bluegill population to a frame net CPUE of 10 or greater with condition and growth at or above the state average.

Strategy 3a. Maintain bass population at densities that prevent bluegill from overpopulating and slowing growth.

Strategy 3b. Monitor bluegill population utilizing standard adult survey methods to determine density, growth and condition.

**Objective 4.** Inform, receive, and use continuing input from the public and other agencies to assist in the management of Lake Molstad.

## 5 YEAR OPERATIONAL PLAN

1. Conduct standard fisheries population surveys in 2005 utilizing eight, 24-hour, 3/4 inch frame net sets, two, 150 foot, experimental gill net sets, and at least one hour of nighttime electrofishing to monitor all fish species.

2. If survey results indicate a bluegill CPUE of 10 or less, stock with bluegill adults at rate of 10/acre.

3. The local Conservation Officer and other GF&P staff should solicit input from all public sources and provide information back to the Regional Fisheries Manager on a regular basis.

4. Conduct a thorough evaluation of the present management plan and complete a new plan by January, 2008

Completed by Dan R Jost, Regional Fisheries Manager, Region II